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A DECADE OF EXPERIENCE UNDER THE IOWA WATER PERMIT SYSTEM—Part One*

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In this time of practically continual water crises around the country, it is almost impossible to overstate the importance of water resources. Scientists, philosophers and poets vie with one another in their endeavors to capture in words the many properties of water. Physically, economically, and esthetically water is essential to a great range of human activities. Such being the case, it must be counted among nature's planning miracles that our water is relatively inexhausted, unlike so many of our other vital natural resources. Through what is known as the hydrological cycle, the overall water supply is continually replenished.[1]

So it must be understood that the majority of today's water problems do not stem from an overall lack of water on the planet; it is rather a continuing lack of accommodation between nature's distribution patterns and man's need patterns that is responsible. Yet, most would agree the fault lies chiefly with man and not with nature. As Secretary of the Interior Udall recently pointed out—"Most of our water crises are man-caused."[2] Man-caused in the sense that our extravagant uses of this precious resource are straining the available supplies, even in areas once considered water rich. An increasing population coupled with greater per capita consumption is much of the story, but industrial, agricultural and recreational demands for water are also expanding rapidly. However, in the words of Secretary Udall, "It is not that finite supplies aren't, in most cases, adequate, it's rather a case of infinitely poor management of these supplies."[3] Efficient allocation of our water resources, coupled with competent management, is commonly recognized as the essential in-

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1. Ecclesiastes 1:7 describes this phenomenon in a somewhat more eloquent fashion: "All the rivers run into the sea; yet the sea is not full; unto the place from whence the rivers come, thither they return again."

2. *Udall,* Ending the Water Crisis, Saturday Review, Oct. 23, 1965. p. 46.

3. *Id.*

gredients to any realistic solution of the problem of water shortages. How to achieve these goals is the critical question. Reported in this monograph is one state's experience with its ten-year old statutory plan for regulating the use of the state's water resources in the public interest.

Ten years have elapsed since the Iowa Study Committee on Water Rights and Drainage Laws drafted and submitted to the Iowa Legislature the Water Rights Bill that revolutionized the allocation of Iowa's water resources. The Iowa permit system is a unique experiment in regulating a natural resource where scarcity is as yet chiefly a potential threat. Now that the administration of the permit system created by this legislation is completing its first decade of operation, the occasion seems ripe for surveying the Iowa experience.

The workings of the Iowa system are of interest to several audiences. All Iowans are affected by the means chosen for allocation of the state's water resources; but to those who must comply with the system to satisfy their water requirements, the details of its operation are of most importance. As the demand for water increases in this country, it is likely that many of the nearly thirty eastern states currently allocating their water resources on the basis of riparian rules will have occasion to reconsider their allocation systems. An awareness of the Iowa experience in water use regulation should provide valuable insights to any state contemplating abandonment of the riparian system in favor of a more modern and efficient water allocation mechanism.

The idea of a benchmark study of the Iowa permit system was first raised with the Water Commissioner in the fall of 1964. The Commissioner's reaction to the project was one of immediate enthusiasm. The Natural Resources Council shared the Commissioner's views, so a promise of full cooperation was quickly forthcoming from the Council. It would be difficult to overstate the importance to this study of the Council's cooperation and the enormous assistance received from the Water Commissioner's office.

The investigators relied almost exclusively on three sources of information: library materials, records in the Water Commissioner's files, and personal interviews with the Water Commissioner and his staff. Although the library materials were essential to afford the study a full perspective, the empirical information obtained from the Water Commissioner's office constituted the lifeblood of this study. The Water Commissioner and his staff not only cooperated fully in answering the researchers' many questions, they also pro-

vided invaluable assistance in collecting and processing the information from their files.

The Water Commissioner's staff recorded on specially prepared schedules the essential facts from each of the over 3400 water permit applications (exclusion of highway applications) received up to June 30, 1965. This information was then coded and transferred to computer punch cards for processing. Thus prepared, the water data were tabulated and analyzed by computer through use of a program specially developed for this purpose. When these data are combined with the information gathered through extensive interviews with the administrators themselves, a relatively complete picture of the operation of the Iowa system emerges.

Although the most important contribution of this monograph probably lies in its exposition of the administration of the Iowa system, effort has been made to make this work as definitive as practicable on all aspects of Iowa's water use law. Thus, the presentation opens with a discussion of the riparian principles under which Iowa water users operated exclusively prior to the enactment of the permit system. Next follows a description of the events leading up to the passage of the regulatory legislation. The water statute itself is next examined and an effort is made to compare the Iowa legislation with the water allocation systems of other jurisdictions. Upon this broad background are explored in detail the ten years of experience in administering the new system. The quantity of information gathered from the Water Commissioner's office is assembled with a view toward highlighting the problems solved and unsolved that provide the best insights into the Iowa operation. The nagging question of constitutionality is examined in its several facets. Finally, some conclusions are drawn from the Iowa experience and a few recommendations are advanced.

I

IOWA'S WATER LAW(S)

As the demand for water continues to accelerate, both private and public water users have become increasingly concerned about the character and permanence of their rights in this valuable resource. Traditionally, water rights law has been derived from the principles applied by the state courts in isolated cases adjudicating the rights of two parties in conflict. The bodies of law developed through this method have assumed two general shapes that are iden-

tified respectively by the labels "riparian doctrine" and "appropriation doctrine."[4] The broad contours of these doctrines are easily discoverable, but any effort to measure with precision the extent of the water rights recognized under them generally falls far short of the goal. This lack of precision is more true of the riparian doctrine which prevails in the thirty-one so-called eastern states than it is of the appropriation doctrine utilized in the West.

The lack of certainty which characterizes these common law water doctrines has led a number of states to attempt to legislate a measure of definitness into their water rights.[5] Usually this legislation does not replace the local common law water rights rules, but it simply takes effect as a veneer, changing a few of the surface characteristics of the existing system.[6] The result is too often a confused layering of statutory rights on common law rights that has the overall effect of compounding the uncertainty of water rights. The one redeeming feature of most such legislation lies in its creation of an administrative agency to operate and enforce the statutory scheme. If this agency is granted sufficient power, and its personnel are both competent and imaginative, and it is willing to tackle the hard problems of water allocation, some hope exists for bringing order out of the present chaos.

Iowa water rights law has generally followed the pattern outlined above. Up to 1957 and to a considerable extent since that date, Iowa water rights have been goverened by riparian principles. A comprehensive water rights law was enacted in 1957 following a period of serious dissatisfaction with the vagueness of the riparian

4. In essence, the difference between the two common law doctrines stems from the geographical differences in the regions in which they arise. In the humid east, apportioning water rights on the basis of land ownership bordering the water source was practical; in the arid and semi-arid west, such a luxurious system was not. A "first-come, first-served" rule was more feasible. The reader who is not already familiar with the essential features of these systems should read Adams, *Water Rights Under Riparian and Appropriation Doctrines* in Iowa's Water Resources—Sources, Uses, and Laws 99 (Timmons, O'Byrne & Frevert ed. 1956) [This book hereafter will be cited simply as Iowa's Water Resources]. For more sophisticated treatments see Ziegler, *Water Use Under Common Law Doctrines,* in Water Resources and the Law 49 (1958); McCormick, *The Adequacy of the Prior Appropriation Doctrine Today,* in Water Resources and the Law 33 (1958); Trelease, *Coordination of Riparian and Appropriative Rights to the Use of Water,* 33 Texas L. Rev. 24 (1954).

5. *See* Ellis, *Some Current and Proposed Water-Rights Legislation in the Eastern States,* 41 Iowa L. Rev. 237 (1956).

6. *See* Ellis, *Some Alternative Types of Water Legislation Enacted or Proposed in Eastern States,* in Iowa's Water Resources 119 (1956).

rights, but there is great uncertainty concerning the exact effect of the statute. The administrative agency created by the act has been laboring to create a rational and effective program for water use allocation, and has, from all appearances, enjoyed a considerable measure of success in the venture.

In this section a brief look will first be taken at the riparian rights law as it has developed in Iowa. Next the events leading up to the statute will be reviewed. Then the statute itself will be examined in detail, and finally some effort will be devoted to comparing the Iowa law to that of other jurisdictions.

A. Background of the Statute

Iowa's present water law is the product of an evolutionary development involving the work and study of a series of legislative committees and the capable assistance of the water agencies of various levels of government. In 1947, the Iowa Legislature appointed the Interim Flood Control Committee. One of the stated purposes of this Committee was to study Iowa's need for laws on the control and use of water, and to submit drafts of any recommended legislation pertaining to this area.[7] A primary aspect of the report submitted by this Committee was a recommendation that a State Water Control and Resources Council be established. The Committee further recommended that a function of the new Council be to study the problem of the preservation of ground water in the state, and to correlate the action of the federal, state, and local governments in all activities relating to flood control and water supplies.[8]

In 1949 the Iowa Legislature established the Iowa Natural Resources Council and assigned to it duties in accord with the recommendations of the Interim Flood Control Committee.[9] In addition, the Council was given the authority to establish a comprehensive state-wide plan for the control of water and the protection of the water resources of the state. In the language of the statute, the

7. *Iowa Acts,* 52 G.A., Extraord. Sess. Ch. 4 (1947). Three senators, three representatives, and six at large members appointed by the Governor comprised the Committee. Until 1963 water was the only natural resource regulated by the Council. Iowa Acts, 60th G.A. Ch. 84 (1963) added oil and gas regulation to the Council's domain.

8. Iowa Interim Flood Control Committee, Report to Governor Robert D. Blue for Submission to the Fifty-third General Assembly 10 (1948).

9. Iowa Acts, 53 G.A. Ch. 203 (1949).

Council's charge is to: "establish and enforce an appropriate comprehensive state-wide program for the control, utilization, and protection of the surface and ground-water resources of the state."[10]

The nine members of the Natural Resources Council are appointed by the government for overlapping six-year terms. Selection for memberships is made from the electors of the state at large solely with regard to their qualifications and fitness to discharge the duties of office and without regard to their political affiliation.[11] Thus far this procedure for selection has resulted in an administrative agency operating around a core of persons highly qualified in water resource development and management.

The Council is required to meet at least four times annually and may meet as many times as is necessary fully to implement the provisions of Iowa's water laws.[12] In practice, the Council attempts to meet at least once a month and averages about thirteen meetings per year. The quarterly meetings specifically required by statute are held in Des Moines, and the others are held at various convient locations around the state. The Council, at these meetings, formulates and reviews the policies and programs for the administration of the laws under its jurisdiction.

During the years 1952 to 1956 the Natural Resources Council made inventories of Iowa's water supply. By showing, in general terms, the amount of water being used and the amount available, the inventories confirmed the fact of a potential water shortage in several areas of the state.[13] In 1950, prior to starting the inventories, and again in 1954, the Natural Resources Council recommended that consideration be given to changing Iowa's water allocation law.[14] Though specific changes were not suggested, the Council expressed the fear that the riparian system would hinder the expansion of beneficial use of water in Iowa.

A series of dry years during the period from 1949 to 1955 brought a marked increase in farmers' use of supplemental irriga-

10. Iowa Code § 455A.2 (1962).

11. Iowa Code § 455A.4 (1962).

12. Iowa Code § 455A.8 (1962). The statute uses the quaint phrase "at the seat of government" to designate the quarterly meeting place.

13. Iowa Natural Resources Council, An Inventory of Water Resources and Problems, Bulls. 1-8 (1953-1959).

14. Iowa Natural Resources Council, Report for the Biennium Ending June 30, 1950, 27; Iowa Natural Ressources Council, Report for the Biennium Ending June 30, 1954, 10.

tion in Iowa. Under the vagaries of the existing riparian system, this increased irrigation meant that cities whose main source of water supply was a river, were in possible danger of being cut off if a few upstream irrigators made withdrawals at the wrong time.[15] By 1955 the competition for water in certain areas of the state had become so potentially serious that the Legislature saw fit to create an Iowa Study Committee on Water Rights and Drainage Laws.[16] The primary purpose of this committee was to present a comprehensive report which would include a consideration of all water problems or potential problems, existing legislation, court decisions, and any federal laws which would provide assistance in the area.

After several meetings and careful study, the committee drafted a bill in the form of an amendment to the 1949 legislation which created the Natural Resources Council.[17] This proposed water rights law was submitted along with the committee's report in 1956.[18] Following, as it did, several years of serious water shortage, the idea of regulating the state water resources in the public interest so appealed to the Iowa Legislature, that the bill swept through both houses of the 57th General Assembly without a dissenting vote.[19]

15. Irrigation in Iowa increased from 76 irrigators irrigating 7,500 acres in 1949 to 250 irrigators irrigating over 25,000 acres by 1955. Predictions were for further marked increases. These predictions have to some extent been fulfilled even in the absence of any particularly dry years since 1955. In 1965 permits in effect authorized the irrigation of nearly 79,000 acres. See O'Connell, Iowa's New Water Statute, 551-557 for a detailed discussion of the alarm caused by burgeoning use of Iowa's waters for irrigation. *See also,* Browning, *Water Requirements of Agriculture,* in Iowa's Water Resources 65.

16. Iowa Acts, 56 G.A., H. J. R. 4, Ch. 326 (1955). The precise charge to this Committee was "to make a comprehensive study of drainage problems, drainage laws, underground and surface waters within the borders of the State, the present and prospective use of irrigation in farming operations, water rights, existing legislation and court decisions affecting such matters, and Federal laws providing for Federal assistance in such matters." The Committee was composed of two senators, two representatives, two at large members and three persons who served in an ex-officio capacity—the Chairman of the Conservation Commission, the Natural Resources Council and the Soil Conservation Committee. Some of the Committee's findings are discussed by Chairman Pendleton in *Some Findings of the Iowa Water Rights and Drainage Law Study Committee,* Iowa's Water Resources 192.

17. In studying Iowa's water problems the Committee held public meetings in each congressional district and met with representatives from many public and private organizations.

18. Iowa Study Committee, Report on Water and Drainage Laws (1956).

19. Iowa Acts, 57 G.A. Ch. 229 (1957). The legislature was sufficiently impressed by the importance of the new law that it made effective immediately upon publication in two newspapers. The law went into effect May 16, 1957.

B. *The Statute*

On reading closely the Iowa Water Permit Statute two distinct impressions are created. First, the act never makes clear precisely what sort of regulatory policy it is that is being legislated. Apparently, certain types of water uses are going to be regulated through the requirements of a permit, but the nature of the rights conferred incident to receiving a permit are never spelled out. The early declarations of general policy contain passages from which a structured system of permits, ordered on the basis of the relative beneficialness of the intended use, may be inferred.[20] However, other sections of the act suggest a system analogous to the issuance of fishing licenses.[21] The license-permittee receives a permit to carry on an activity illegal without the permit. Some restrictions are placed on his conduct of the licensed activity (daily creel limits) but there is no notion of competition for the right to carry on the regulated activity. No real inquiry is made concerning whether the applicant is more or less deserving of his permit than other applicants.

The second impression gathered from the act is that the Legislature strived valiantly to create an allocation scheme uniquely suited to Iowa conditions, but ended up instead with a piece of what Roscoe Pound once called "agglutinative legislation." Excellent ideas and provisions were excised from several relevant sources but in the process of drawing them together into a unified regulatory plan, the diversity and inconsistency of the various ingredients were never effectively smoothed out. The act not only lacks internal consistency, some of the provisions actually seem to contradict others.[22] As will be developed later the agency designated to administer the statute certainly had its work cut out for it in resolving these basic ambiguities and internal conflicts.

The statute begins by defining the essential terms used in development of the regulatory framework. As is often true in regulatory statutes, the essential features of the regulation are primarily determined by reference to the definitions section of the act. Most of the main characteristics of the Iowa act are discoverable by reading the definitions. The basic scope of the regulatory coverage is indi-

20. *See* Iowa Code § 455A.2 (1962), and text *infra* accompanying footnotes 133-138.

21. *See* Iowa Code §§ 455A.1 and .20 (1962), and text *infra* accompanying footnotes 139-143.

22. *Compare* Iowa Code §§ 455A.1, .18, .20, .21, and .29 (1962).

cated by the definition of "non-regulated use."[23] The stringency of the standards applicable to the granting of permits is inferable from the definition of "beneficial use."[24] The concept of protecting stream flows and the procedure for setting such protection are articulated in the definition of "established average minimum flow."[25] To its credit the definition section includes only terms that are fairly important to giving meaning to the subsequent provisions, although a few of the terms are later used in the act in a limited fashion which renders their specific definition rather unnecessary.[26]

Next the statute declares the interest of the state concerning its water resources:

> Water occurring in any basin or in any watercourse, or other natural body of water of the state, is hereby declared to be public waters and public wealth of the people of the state of Iowa and subject to use in accordance with the provisions of this chapter, and the control and development and use of water for all beneficial purposes shall be in the state, which, in the exercise of its police powers, shall take such measures as shall effectuate full utilization and protection of the water resources of the state of Iowa.[27]

The policy declaration continues by pronouncing that it is in the interest of the people of the state to regulate the water resources of the state so that they are "put to beneficial use to the fullest extent of which they are capable. . . ."[28] To effectuate this policy of regulations, the statute confers on the Iowa Natural Resources Council the power and the duty to adopt a state-wide plan for the control of the state's water resources. A framework for this plan is then set up in the form of a water use permit system which regulates the taking of water from any surface or underground source for any purpose other than a nonregulated use.[29]

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23. Iowa Code § 455A.1 (1962).

24. Iowa Code § 455A.1 (1962).

25. Iowa Code § 455A.1 (1962).

26. For example, "depleting use" is used only in § 455A.32 to create a distinction which seems unnecessary. Either a use is regulated or it is nonregulated. Depleting seems to add nothing to this basic dichotomy. Also, § § 455A.1 and .25 both spell out in detail the nature and extent of the exemption of municipalities and certain industrial users.

27. Iowa Code § 455A.2 (1962).

28. *Id.*

29. Iowa Code § 455A.26 (1962) contains the nub of the regulation. It provides "No person shall take the water from any natural watercourse, underground basin or

Nonregulated uses are defined to include the use of water for:

> (1) [O]rdinary household purposes, use of water for poultry, livestock and domestic animals, . . .
> (2) [A]ny beneficial use of surface flow from rivers bordering the state of Iowa, . . .
> (3) [U]se of ground water on islands or former islands situated in such rivers, . . .
> (4) [E]xisting beneficial uses of water within the territorial boundaries of municipal corporations on May 16, 1957, except that industrial users of water, having their own water supply, within the territorial boundaries of municipal corporations, shall be regulated when such water use exceeds three percent more than the highest per day beneficial use prior to May 16, 1957, . . .
> (5) [A]ny other beneficial use of water by any person of less than five thousand gallons per day. . . .[30]

Additionally, it is provided that the statute will not deprive any person of the right to use diffused waters, or to drain land by use of tile, open ditch or surface draining, or to construct an impoundment on his property or across a stream that originates on said person's property.[31]

The exemption of water used for ordinary household and other domestic purposes is very similar to the rights of riparian owners

watercourse, drainage ditch, or settling basin within the state of Iowa for any purpose other than a nonregulated use except upon compliance with §§ 455A.19 to 455A.32, inclusive, provided that existing uses may be continued during the period of the pendency of an application for a permit."

The statute then provides for the creation by the Council of a special staff to administer the permit system. The chief administrative officer of this staff is to be designated the Water Commissioner. § 455A.9(2). The duties of the Water Commissioner are generally prescribed by the Council, but he is specifically to serve "in a quasi-judicial capacity" as the trier of fact questions in the processing of applications for permits. Deputy Water Commissioners are authorized who "have all the duties, responsibilities, and powers of the water commissioner when acting in his stead." § 455A.9 (3). The Water Commissioner and his deputies are to be qualified in their positions by training and experience. All serve at the pleasure of the Council. The Water Commissioner since the creation of that office has been Richard Bullard, a professional engineer. Bullard was formerly Director of the Council, but he resigned that post to become Water Commissioner because it was decided that the two positions should not be filled by the same person. *See* Letter Opinion from Office of Att'y Gen. of Iowa to Iowa Nat. Res. Council dated June 17, 1957 in the Council's office. The two current Deputy Water Commissioners are Clifford Peterson, an attorney, and Louis Gieseke, an engineer. Both of these men have served in their positions for a number of years.

30. Iowa Code § 455A.1 (1962).

31. Iowa Code § 455A.27 (1962).

under that doctrine to the use of water for their domestic purposes.[32] In fact, it is arguably larger in two ways. The statutory exemption is not limited to riparian owners but is applicable to all users. The vitality of this expansion is diminished, however, due to the lack of access to the water supply. A second possible expansion stems from a strict reading of the statute. The word "ordinary" appears to pertain to household purposes only and not to poultry, livestock, and domestic animals. Probably a better interpretation policywise is the view of the Attorney General and the Natural Resources Council that the word "ordinary" does modify both "household purposes" and "livestock."[33]

Relevant here also is the doctrine of "established average minimum flow," to be discussed later,[34] which establishes a minimum point below which regulated consumptive users cannot withdraw water. This has the effect of guaranteeing water to the unregulated users if any water is available.

Users taking water from border rivers are also exempted. This affects those users along the Mississippi and Missouri Rivers and those users along the lower ends of the Big Sioux and Des Moines Rivers. One possible reason for this exemption is the obvious difficulty in regulation when there is no similar action in the neighboring state. The disadvantages of the exemption are also reduced due to the relatively large amounts of water available there.

The exemption for those users on islands or former islands of the border rivers is limited to ground water unless the user can also withdraw from the border river itself. This provision was put into the statute on the insistence of several irrigators on former islands along the Mississippi.[35]

Water uses existing on the effective date of the statute inside the corporate boundaries of municipalities are initially exempt. As these

32. The Iowa court has defined domestic use as "the use for domestic purposes, including household purposes, such as cleansing, washing, and supplying an ordinary number of horses or stock with water. . . ." *Willis v. City of Perry,* 92 Iowa 297, 303, 60 N.W. 727,729 (1894).

33. *See* Iowa Att'y Gen. Rep. 217 (1960).

34. *See* discussion accompanying footnotes 151-173 *infra.*

35. These parties later had cause to regret their success at obtaining an exemption. Since the date of the act several large industries have moved into this area and have lowered the water table to the point that many of the irrigation systems are inoperative. Bullard, Continuing Needs for Water Law Administration, Paper presented at the 19th Annual Meeting, Soil Conservation Society of America, Jackson, Miss., Aug. 26, 1964 at p. 7 (Mimeo).

uses grow, they may become subject to regulation.[36] This provision will be discussed more fully later with the regulated uses. The statute appears to refer to the location of the water source as opposed to the location of the industrial user if the two are different. Such a choice would seem consistent with the intent of the statute to regulate the taking of water as opposed to the actual use of the water. This may be a bit confusing as a central area of inquiry is often the intended use to which the water will be put, but the final determination is whether water may be taken from a particular source.

The last exemption from regulation pertains to users of only a minimal amount of water. The use of water in amounts of less than 5,000 gallons of water per day is exempt from regulation. This is no magic figure and could probably be much larger without reducing the effectiveness of a water rights law.[37] Five thousand gallons per day is approximately the amount of water which a garden hose would discharge at moderate pressure if allowed to flow continuously for 24 hours.

All depleting uses not enumerated as nonregulated uses are regulated uses and subject to the prohibition against taking water without a permit.[38] Depleting use is defined so broadly as to effectively place all conceivable uses under regulation.[39] The statute has given the Council the authority to grant permits for the withdrawal, diversion, or storage of water for beneficial uses.[40] The statute further provides an affirmative duty to grant permits for proposed diversion, storage, or withdrawals if it is found that such proposed uses will not be detrimental to the public interests or to the interests of property owners with prior or superior rights.[41]

Beneficial use is defined as the application of water to a useful purpose that inures to the benefit of the water user, but does not include the waste or pollution of water.[42] Pollution is not defined, but waste is defined as the use of water in a manner so that it is not put to its full beneficial use, transporting water so that there is an exces-

36. Iowa Code § 455A.25(1) (1962).
37. *See* Bullard, *supra* note 35, at 6.
38. Iowa Code § 455A.26 (1962).
39. Iowa Code § 455A.1 (1962).
40. Iowa Code § 455A.18 and .19 (1962).
41. Iowa Code § 455A.20 (1962) provides that the Commissioner or Council *"shall grant a permit"* unless certain conditions are obtained.
42. Iowa Code § 455A.1 (1962).

sive loss in transit, and permitting or causing the pollution of ground water.[43]

The statute then limits the authority granted by providing that all permits authorizing the withdrawal and use of water in a watercourse must be subject to an established average minimum flow.[44] Other limitations protect navigability of streams[45] and pollution control.[46]

It should be noted that although the Iowa statute makes several references to pollution and pollution control laws, this subject is not within the domain of the Natural Resources Council. Since 1965, the Iowa Water Pollution Control Commission has had jurisdiction over water quality regulation.[47] Before that date pollution control was handled by the State Health Department.[48] Many observers, including the drafters of the Model Water Use Act, believe that problems of water quantity and water quality are so closely related as to be inseparable. Therefore, they argue all such problems should be handled by a single agency.[49]

This suggestion was made during the discussions prior to the enactment of the recent water pollution control act,[50] but it was not favorably received by the proponents of the 1965 legislation. Hence, Iowa water resource management has something of a split personality, water allocation policy set by the Council and water quality policy set by the Commission. This situation seems contrary in many respects to the legislative declaration of policy announced in creating the Council: "[I]t is hereby declared to be the policy of the state to correlate and vest the powers of the state in a single agency,

43. Iowa Code § 455A.1 (1962).
44. Iowa Code § 455A.22 (1962).
45. Iowa Code § 455A.24 (1962).
46. Iowa Code § 455A.23 (1962).
47. Iowa Acts, 61st G.A. ch. 375 (1965).
48. *See* Iowa Code § § 135.18 et seq. (1962).
49. *See* Commissioners of Uniform State Laws, Model Water Use Act, § 601 et seq. (1958). The Comment to § 601 states, "The waste assimilation capacity of a body of water is determined greatly by its quantity. The intelligent regulation of waste disposal necessitates a consideration of all uses made of the water. The interrelation of waste assimilation, consumptive use, and non-consumptive uses, such as wildlife preservation, requires that, for the most beneficial use and development of water resources of a state, pollution control be vested in the Commission [the Model Act's equivalent of the Iowa Council] administering other water uses."
50. See Report to Governor Hughes, Governor's Public Health Advisory Committee, February 2, 1965. Nelson, *Proposed Water Pollution Bill Needs Careful Study,* Cedar Rapids Gazette, Feb. 21, 1965, at 12B, col. 1.

the Iowa natural resources council, with the duty and authority to establish and enforce an appropriate comprehensive state-wide program for the control, utilization, and protection of the surface and ground-water resources of the state."[51]

Some measure of coordination is assured between the state's two water regulation agencies by provisions in the new water quality act specifying the Director of the Natural Resources Council as a member of the Control Commission[52] and requiring the concurrence of the Council in the setting of water quality standards where quality is interrelated to quantity.[53] In theory, this latter provision would seem to require the consent of the Council to all water quality standards because of the impossibility of divorcing quality and quantity considerations. In practice, the two agencies have been working well together and there seems no cause to believe that this bifurcated approach to water problems will be unduly deleterious to Iowa's water management program.

A water use permit is required for the following uses, withdrawals, or diversions.

(1) Any municipal corporation or person supplying a municipal corporation which increases its per day water use by one hundred thousand gallons or three per cent, whichever is greater, above its highest per day beneficial use prior to the effective date of the statute.

(2) "Except for a nonregulated use, any person using in excess of five thousand gallons of water per day, diverted, stored, or withdrawn from any source of supply except a municipal water system or any other source specifically exempted. . . ."

(3) "Any person who diverts water or any material from the surface directly into any underground watercourse or basin. Provided, however, that any diversion of water or material from the surface directly into any underground watercourse or basin existing upon [the effective date of the statute] shall not require a permit if said diversion does not create waste or pollution."

(4) "Industrial users of water having their own water supply, within the territorial boundaries of municipal corporation, shall be regulated when such water use exceeds three per cent more than the

51. Iowa Code § 455A.2 (1962).
52. Iowa Acts, 61st G.A. ch. 375 § 4 (1965).
53. Iowa Acts, 61st G.A. ch. 375 § 9(4) (1965).

highest per day beneficial use prior to . . ." the effective date of the statute.[54]

Municipal corporations are not automatically regulated under the statute. Before municipalities become subject to regulation they must increase their per day water use by the greater of one hundred thousand gallons or an amount more than three per cent greater than their highest daily use before the date of the enactment of the statute. Thus, if the maximum amount of water used per day prior to May of 1957 was more than three and a third million gallons, an increase of even more than one hundred thousand gallons is required to cause regulation.

The second group of regulated users includes all water users who are not included in one of the other three groups and who are not specifically exempted from regulation. Typical of this group are irrigators, storage users, industrial users located outside the territorial limits of municipal corporations, and highway builders. This is by far the largest and most significant of the four groups of regulated water users.

A permit is also required to introduce water or other substances into underground watercourses.[55] The most obvious example of this is a drainage well used to drain swampland. The five thousand gallon floor has no applicability to this type of use. Regulation of this activity is not restricted to water, but includes the pumping of "any material" into the ground.[56]

The final group of users who eventually may become regulated are those industries that are located inside the territorial boundaries of a municipal corporation and that have their own water supply. They may be required to obtain permits under the same three per cent rule that is applicable to municipalities, but there is no one hundred thousand gallon minimum increase.

The procedure for securing a permit to divert, store, or withdraw water is as follows:

(1) An application must be made in writing to the Council setting out the designated beneficial use for which the permit is sought and the specific limits as to quantity, time, place, and rate of diversion,

54. Iowa Code §455A.25(1), (2) & (4) (1962).

55. Iowa Code §455A.25(3) (1962).

56. Several gas companies have obtained permits to pump natural gas into natural underground reservoirs for storage. This operation results in the expulsion of large quantities of water contained in the rock formations.

storage, or withdrawal.[57] A fee of fifteen dollars must accompany the application.[58] It will be used to help pay for the costs of published notice.

(2) Upon receipt of the application, the Water Commissioner schedules a hearing which is usually held in the county where the permit is sought.[59] Notice of hearing is published by the Water Commissioner "once each week for two consecutive weeks in a newspaper of general circulation in each county in which the property affected is located."[60] The date of the last publication must be between ten and thirty days before the hearing. Notice is also sent by ordinary mail to interested state departments and to any other person who has filed a written request for notification of any hearings affecting a designated area. The mailed notices must be sent prior to the date of last publication.[61]

(3) Any interested person may appear and present evidence at the hearing. He may also be represented by counsel who can cross-examine others who present evidence.[62] The Council has promulgated more particularized rules for the conduct of the hearings.[63] After the hearing, the Water Commissioner files a written determination with the Council which states his findings. A copy of the determination is mailed to the applicant and to any other person who appeared at the hearing and requested a copy in writing.[64]

(4) Any party aggrieved by the determination of the Water Commissioner may appeal to the Council within thirty days of the date the determination is filed.[65] The Director will then schedule a hearing before the Council and send notice to all those who appeared at the hearing before the Water Commissioner. The Council hears the appeal, files its determination, and mails copies of it to the applicant and others who request it.[66] Further appeal is possible to the

57. Iowa Code § 455A.19(1) (1962).
58. Iowa Code § 455A.19(5) (1962).
59. Iowa Code § 455A.19(2) (1962).
60. Iowa Code § 455A.1 (1962).
61. Iowa Code § 455A.19(3) (1962).
62. Iowa Code § 455A.19(4) (1962).
63. Iowa Code § 455A.19(6) (1962) authorizes the promulgation of such rules. These rules have been adopted and are available from the Natural Resources Council office in Des Moines. The published two page statement is known by the catchy title of General Procedures For the Conduct of Hearings Before The Water Commissioner on Applications For Permits to Divert, Store, or Withdraw Waters of the State of Iowa.
64. Iowa Code § 455A.19(7) (1962).
65. Iowa Code § 455A.19(8) (1962).
66. Iowa Code § 455A.19(9) (1962).

district court of the county where the property affected is located.[67] The statute calls for a trial de novo with the burden of proof on the Council to show that its acts and orders are reasonable and necessary. After a decision by the district court the normal rights of appeal to the Iowa Supreme Court apply.

For use at the hearing and in making the determination, the Commissioner's office must make an investigation of the effect of the new withdrawal, diversion or storage upon the natural flow of the watercourse, the effect of any such withdrawal on the owners of land which might be affected, and the effect on the state's comprehensive plan for water resources.[68] If the Commissioner finds, after due investigation, that such withdrawal, diversion or storage will not be detrimental to the public interests or to the interests of property owners with prior or superior rights who might be affected, then the Water Commissioner *shall* grant a permit for such withdrawal, diversion, or storage. The permit may be for any period of time not to exceed ten years. It may provide for less diversion, storage, or withdrawal of water than set forth in the application.[69]

Until it expires or is revoked, the granted permit remains as an appurtenance to the land.[70] A permittee may transfer his permit by conveying, leasing, or otherwise transferring the ownership of the land.[71] However, the permit does not constitute complete ownership of the waters which remain subject to principles of beneficial use and the powers of cancellation and modification in the Council.

A permit may be renewed any number of times for any period not to exceed ten years.[72] Permits can be modified or canceled under the following circumstances:

(1) With the consent of the permittee.[73]

(2) In case of any breach of the terms or conditions of the permit, in the case of the violation of any pertinent law, in the case of continual nonuse for a three-year period, or in case such modification

67. Iowa Code § 455A.37 (1962). Reading the statute literally, it would appear that those persons or public bodies aggrieved by, but not parties to, the granting of the permit by the Commissioner may appeal directly to the district court sitting in the county where the land affected is situated and thereby bypass the appeal to the Council. It is doubtful the legislature intended such a result. Once in the district court, the procedure would be the same in either case. *See* Iowa Code § 455A.20 (1962).

68. Iowa Code § 455A.18 (1962).

69. Iowa Code § 455A.20 (1962).

70. Iowa Code § 455A.20 (1962).

71. Iowa Code § 455A.30 (1962).

72. Iowa Code § 455A.20 (1962).

73. Iowa Code § 455A.28(1) (1962).

or cancellation is found necessary to protect the public health and safety, the public interests in lands or waters, or the private interests of persons. Notice and a hearing are guaranteed before this action is effective.[74]

If it is found necessary in an emergency to protect the public health and safety, to protect the public interest in lands or waters, or to protect persons or property the Commissioner may suspend operations under the permit.[75] As this power involves only temporary supervision of operations, no provision is made for an immediate hearing.

Enforcement powers of the Council extend to detecting and forbidding unauthorized users. If any person files a complaint that any other person is making a depleting use of water not exempted and without a permit to do so, the Council shall investigate and if the facts stated in the complaint are verified, the Council shall order the discontinuance of the use.[76] Whoever is convicted on a charge of diverting or withdrawing of water in violation of the law may be fined up to $100 or imprisoned for up to thirty days. Each day of continued unlawful use is considered a separate offense.[77]

C. *Relation to other Water Laws*

Because irrigation, the use chiefly regulated by the Iowa statute, has historically been a problem of concern in the western states,[78] it

74. Iowa Code §§455A.28(2) & .29 (1962).

75. Iowa Code §455A.28(3) (1962).

76. Iowa Code §455A.32 (1962).

77. *Iowa Code* Ann. §455A.39 (Supp. 1966) as amended by *Iowa Acts* 61st G.A. ch. 372 § 6 (1965).

78. *See* Fisher, *Western Experience and Eastern Appropriation proposals,* in The Law of Water Allocation in the Eastern United States 75 (1958); Beuscher, *Appropriation Water Law Elements in Riparian Doctrine States,* 10 Buffalo Law Rev. 448 (1961). Evidence of the concern in Iowa relating to the rights of irrigators is shown by a proposed water bill sponsored and circulated by the Iowa State Vegetable Grower's Association in 1956. This bill drafted by C. L. Fitch, Secretary of the Association reflected Mr. Fitch's long experience with Colorado water law. Among other things the bill provided for the prompt termination of riparian rights and the shift to a prior appropriation system, with the following priorities fixed: 1. Domestic uses, 2. Municipal uses, 3. Irrigation, 4. Industrial, 5. Air Conditioning and production of water power. History does not record the precise fate of Mr. Fitch's bill, but for some reason it apparently never reached the floor of the legislature.

It is significant to note that the original draft of the Iowa water permit law used appropriation language in defining the nature of a water use right. For example, "Appropriation" was defined as "the person who obtains a permit from the Council authorizing such person to take possession by diversion or otherwise and to use and apply an allotted quantity of water for a designated beneficial use, and who makes

would not be surprising to discover that the drafters of the Iowa statute looked for guidance to some elements of the appropriation doctrine indigeneous to that region. Under the appropriation doctrine water rights are determined on the basis of the time water is diverted to a beneficial use.[79] The essential elements of a valid appropriation are an actual diversion of the water with the intent to apply it to a beneficial use followed by an actual application of the water to the intended use.[80] For purposes of making an appropriation, beneficial uses include the diversion of water for domestic, agricultural, municipal, industrial, recreational, and power production purposes.[81]

The first user to fulfill these requirements is said to have developed an appropriative right in the water supply diverted to the extent of the amount of water beneficially used.[82] Unless lost for some cause,[83] this right has priority over the right of any subsequent appropriator.[84] In all of the western states the procedure for perfecting an appropriative water right is specified by statute,[85] and in all but one of these states a central administrative agency has been created to bring some order to the system.[86]

The Iowa permit system bears many superficial similarities to western water law. The employment of an administrative agency

actual use of the water for such purpose." Preliminary Draft of Proposed Water Law (1956) (unpublished document in Iowa Law School Library). These references to appropriation were subsequently omitted from the draft, reportedly due to the fear that they might unduly alarm people. In many cases "permittee" was substituted for "appropriator" but the thrust of the provisions were left unchanged. One tennant of the original draft apparently overlooked when the appropriation language was being exercised in the phrase "appropriation permits" used in Iowa Code Ann. § 455A.9(2) Supp. 1966.

79. *See* generally 6-A AMERICAN LAW OF PROPERTY § 28.58 (A. J. Casner ed., 1954); Hutchins, Selected Problems in the Law of Water Rights in the West (1942).

80. *See* Adams, *Water Rights Under Riparian and Appropriation Doctrines,* in Iowa's Water Resources 99, 105 (1956).

81. *See* Trelease, *Preferences to the Use of Water,* 27 Rocky Mt. L. Rev. 133 (1955).

82. *See* Big Moose & Beaver Ditch Co. v. Wallop, 382 P.2d 388 (Wyo. 1963); Turner v. Cole, 31 Ore. 154, 49 P. 971 (1897); Koon v. Empey, 40 Idaho 6, 231 P. 1097 (1924).

83. *See* Cal. Water Code Ann. §§ 1410-15 (Deering Supp. 1954); Hutchins, *supra* note 79 at 389-97.

84. *See* State of Arizona v. State of California, 373 U.S. 546 (1963); Zannaras v. Bagdad Copper Corp., 260 F.2d 575 (9th Cir. 1958).

85. *See* State Administration of Water Resources, Council of State Governments 29-31, 38-45 (1957).

86. In Montana under its statute an appropriative right is perfected by posting notice at the point of appropriation and filing notice of the appropriation in the county records.

in the water allocation field is primarily a western phenomenon, for example. Recognition that the right to use water should not be the exclusive prerogative of owners of land bordering the water is a western idea, as is the loss of water rights through non-use. Perhaps the most important apparent borrowing from the West is the utilization of the broad standard of "beneficial use" to determine the legitimacy of a use. Beneficial use is a criterion admitting of considerably more latitude for judging the legality of a use than the riparian concept of "reasonable use."[87]

Before the analogy to western law is pursued too far, it should be pointed out that two of the central features of western water law, permanence of the right and established priorities, are not a part of the Iowa law. Iowa permits are for a maximum of ten years and, except for the consumptive-non-consumptive dichotomy discussed later,[88] no permittee is accorded a priority. Occasionally commentators have alleged that these differences constitute the real weaknesses in the Iowa system.[89] Iowa administrators deny that such has been the case in reality. This issue will be much more fully developed later.[90]

Further widening the hiatus between the Iowa Act and western law is the concept of a protected minimum stream flow, basic to the Iowa system but entirely foreign to the appropriation doctrine. In the arid West the notion of always allowing a certain quantity of water to flow out of the region unused would not be received with great enthusiasm.

It would seem reasonable to assume that some inspiration for the Iowa statute must have come from the flood of water use regulation bills introduced in eastern state legislatures in the middle 1950's. By 1958, no less than 24 of the states under riparian law had taken some serious steps toward effecting a legislative change of their water law.[91] Strangely, the Iowa system does not have a great deal in common with most of these proposed statutes, or even with the

87. *See* Fisher, *Western Experience and Eastern Appropriation Proposals,* in The Law of Water Allocation in the Eastern United States, 75, 78 (1958).

88. *See* discussion accompanying footnotes 151-156.

89. *See* O'Connell, Iowa's New Water Statute 549, 579 (1962). The Iowa Irrigator's Association has gone on record as opposed to the Iowa act because of the impermanence of the rights granted. Hearings on S.48 Before the Select Committee on National Water Resources, 86th Cong. 1st Sess., pt. 10, at 1800 (1959).

90. *See* discussion accompanying footnotes 180-183.

91. *See* King, *Regulation of Water Rights Under Police Power,* in Water Resources and the Law 271, 347 (1958).

Model Water Use Act[92] which also came out of this period of feverish interest in water rights. Most of the acts have in common with Iowa's statute the allocation of water under a beneficial use principle to be administered by a regulating agency charged with developing and implementing a comprehensive water policy. But almost all of the other proposed state acts make rather elaborate provisions for the preservation of the rights of existing riparian users,[93] avowedly on constitutional law grounds. The Iowa Act, as administered, recognizes no rights that have attained a degree of vestedness under riparian law as to insulate them from regulation.[94]

Irrigators' rights have caused considerable concern in humid states other than Iowa during the past decade. Many statutes restricting the rights of irrigators to divert water in time of shortage have been proposed and a few have been enacted.[95] Iowa's handling of the issue differs from that of other states more in method than result.

The one eastern state regulatory plan that appears to have significantly captured the fancy of the Iowa drafters was the Mississippi Act passed in 1956.[96] Several of the Iowa provisions were lifted verbatim from the Mississippi Act, but these are not nearly so important as the protected flow concept borrowed from the southern state's law. Actually, Mississippi had in turn borrowed most of its statute from a bill introduced in South Carolina in 1954 and amended and reintroduced in 1955.[97] The South Carolina bill never did pass in that state, but its provisions attracted a great number of supporters in other states.[98] The "average minimum flow" idea apparently originated with the South Carolina Water Policy Committee.[99] Whatever its genesis, Iowa was the first state to both

92. Approved by the Commissioners on Uniform State Laws at their annual conference August 18-23, 1958.

93. *See* Ellis, *Some Current and Proposed Water Rights Legislation in the Eastern States,* 41 Iowa L. Rev. 237 (1956). *See also* Prefatory Note, Model Water Use Act (1958) where one essential feature of a water use act is slated to be, "Constitutional rights must be recognized and protected."

94. *See* discussion accompanying footnotes 109-114.

95. *See* N.C. Sess. Laws 1951, ch. 1049; *repealed* N.C. Sess. Laws 1961 ch. 315; Ky. Rev. Stat. § 262.690 (Supp. 1959); S.B. 69, Ark. 60th G.A. Reg. Sess. (1955); Barlowe, *Proposed Water Rights Legislation in Michigan,* 26 Land Econ. 300 (1950).

96. Miss. Code Ann. § 5956-ol et seq. (Supp. 1964).

97. *See* H.B. 1095 & S.B. 43, S.C.G.A., Reg. Sess. (1956).

98. *See, e.g.,* S.B. 153 & H.B. 298, N.C.G.A. (1955); S.B. 69, Ark. 60th G.A., Reg. Sess. (1955).

99. *See,* A New Water Policy for South Carolina, Report of the State Water Policy Committee to the General Assembly of South Carolina (1954).

adopt and extensively implement it. Minimum flow protection reflects certain water management decisions with which not all commentators agree,[100] but sound or not, it is a matter of water policy that Iowa has developed to an unparalleled degree and it is a highly important aspect of tthe Iowa permit system.

The idea of a water right limited in its duration is advocated in the Model Water Use Act,[101] but is accepted in no state other than Iowa. Elsewhere, water rights are granted in perpetuity. The Model Act suggests a fifty-year permit term, so Iowa's ten-year maximum is truly a unique experiment. The theory behind the short Iowa term was to preserve maximum flexibility in the early years of regulation.[102] Now that a decade of experience has been accumulated, it might be expected that the permit durations might be lengthened, but there seems to be no substantial interest in such a change currently. In part, this is probably due to the relative ease with which permits may now be renewed and modified.

One other facet of the Iowa statute that deserves mention at this point is its uniform regulation of water without regard to the form in which it occurs.[103] One great deficiency of the common law rules lay in their attempt to distinguish between different types of water sources for purposes of applying different principles to uses therefrom.[104] Similarly, rights to ground water have always been a source of great confusion in western states,[105] and several eastern regulatory statutes confine their scope of control to streams.[106] Such segmented treatments of water resources ignore the validity of the hydrological cycle and are therefore often basically irrational in their application. For example, it is useless to regulate the use of streams for irrigation purposes if the irrigator may freely tap the stream flow by digging an unregulated alluvial well adjacent to the

100. *See, e.g.,* Hirshleifer, De Haven & Milliman, Water Supply—Economics, Technology, and Policy (1960).

101. Model Water Use Act § 406 (1958).

102. *See* Bullard, Continuing Needs For Water Law Administration, Paper presented at the 19th Annual Meeting, Soil Conservation Society of America, Jackson, Miss., Aug. 26, 1964.

103. Iowa Code § 455A.1, .25 (1962).

104. *See* Ziegler, *Water Use Under Common Law Doctrines,* in Water Resources and the Law 49, 81-82 (1958); O'Connell, Iowa's New Water Statute 549, 569.

105. *See* Harnsberger, *Nebraska Ground Water Problems,* 42 Neb. L. Rev. 721 (1963); Hill, *Ground Water: What is the Law in North Dakota?,* 37 N.D. L. Rev. 260 (1961).)

106. *See, e.g.,* Mississippi statute *supra* note 96 and Kentucky statute *supra* note 95.

stream.[107] The blanket approach of the Iowa statute generally accords with the thinking of modern hydrologists.[108]

In the final analysis, it is difficult to generalize on the position of the Iowa water law in relation to other states' systems. Iowa still retains a good deal of riparian law in common with most of her neighbors to the east. On the other hand, some aspects of the Iowa permit system resemble the appropriation law of the West. Portions of the Iowa law were borrowed from the untried regulatory schemes of some eastern jurisdictions. The resulting mixture is truly a hybrid that fits comfortably no established category. And, like any hybrid, it should be judgd, not on the basis of its ancestry, but rather on the basis of its performance. Ten years of that performance is now history waiting to be evaluated.

II

ADMINISTERING THE PERMIT SYSTEM

When the Water Commissioner and his staff first set about the task of administering the new water statute in the summer of 1957, the initial question confronting them was essentially where to start. As is the case with most newly constituted agencies, dozens of issues seem to compete for primary attention, the resolution of each of which appears a prerequisite to handling the others. The tensions inherent in such a dilemma are heightened further by the pressure on the administrator to show some tangible evidence of accomplishment. In the case of the Water Commissioner, this pressure took the form of a flood of water permit applications that demanded processing. In the following sections an effort will be made to highlight the more important issues faced in the administration of the Iowa permit system and to describe in detail the experience of the Water Commissioner in his endeavor to resolve them.

107. It is by no means certain how this type of case would come out in Iowa under either the statute or riparian principles. The established average minimum flow applies only to streams, so on its face the act would not seem to regulate well withdrawals during times of shortage; however, the Commissioner is invested with considerable discretion in terms modifying permits for cause. Iowa Code § 455A.28(2) (1962). Under common law it is possible only to speculate whether the rationale of Willis v. City of Perry, 92 Iowa 297, 60 N.W. 727 (1894) would be applied to a situation where one user was on stream and another off stream.

108. *See* Piper & Thomas, *Hydrology and Water Law: What is Their Future Common Ground,* in Water Resources and the Law 7 (1958); Smith, *Some Steps Toward Solution of Iowa's Water Problems,* in Iowa's Water Resources 183; Thomas, *Hydrology vs. Water Allocation in the Eastern United States,* in The Law of Water Allocation in the Eastern United States 165 (1958).

A. Interpreting the Scope of Regulatory Power

During the early period of administration, the Commissioner and the Council were compelled by necessity to make certain policy judgments concerning the scope of their regulatory power. Several critical matters had to be settled before the Commissioner could meaningfully go about the business of putting the permit system into effect. (One point that requires early clarification is the use of the terms "Commissioner" and "Council" in the description of administrative activity. The Commissioner is the administrative officer assigned by the Council to carry out its responsibilities under the permit law. Therefore, except where a distinction is clearly implied by contest, as used herein, the two terms are synonomous.)

Initially, a decision had to be made regarding the recognition to be according riparian rights existing at the time the statute was enacted. Next, policy had to be established concerning the extent to which the agency's regulatory power could be exercised and the extent it would be. Policy questions associated with the latter inquiry include such matters as the types of uses to be regulated, the amount of regulation to impose and the nature of the rights created through issuance of a permit. Although not heralded by any particular ceremony or announced with any fanfare, these policy issues were decided early in the administrative process, and their resolution has had a great impact on the way the permit system had been developed. The attempt is made to separate these matters in the discussion that follows; however, because they are so closely interrelated some overlapping is unavoidable.

1. Vested Rights

As noted in an earlier section, all the statutes regulating water rights in other states in which the riparian doctrine prevailed go to elaborate lengths to protect rights that may already be fixed at the time the regulatory plan becomes operative.[109] Uniformly this protection is explained as being required to assure the constitutionality of the legislation.[110]

109. For example, the Model Water Use Act contains a series of detailed sections, the titles of which suggest their purpose—§ 303 Preservation of Existing Uses, § 304 Certification of Existing Uses, § 305 Exchange of Preserved Uses, § 306 Extinguishment of Preserved Uses.

110. *See* Comments to sections of Model Water Use Act cited in note 109 *supra*. Among other statements the Comment to section 303 indicates that the protection of existing uses is required because "it may constitute a violation of a state constitution as an unlawful exercise of police power if existing uses of water were substantially regulated by a limitation in their duration."

The Iowa Statute contains no extensive provision dealing with pre-existing interests, but it is far from free of language indicating concern for the problem. Section 455A.18 directs the Council, in connection with a permit application to investigate, among other matters, "the effect of any such use upon the owners of any land which might be affected by such use. . . ." Section 455A.20 is more specific in stating the findings requisite to issuance of a permit. The requested use may not be detrimental "to the interests of property owners with prior or superior rights who might be affected. . . ." In connection with the right of existing irrigators to obtain a permit, section 455A.21 provides that a permit shall be issued to continue "unless by the use thereof some other riparian user is damaged." Later on in the same section, the flat declaration is made that "Nothing in this chapter shall impair the vested right of any person."[111] Considering all of these provisions in the aggregate leaves the distinct impression that the legislature was painfully aware of the potential constitutional problem, but completely unable to decide what to do about it beyond periodically indicating their concern.

In the face of all this statutory language implying the vestedness of certain riparian rights and the universal reverence for such rights shown by other jurisdictions, the Water Commissioner has consistently refused to admit the possibility that any uses are beyond the reach of regulation in Iowa, save those specifically excluded in the statute.[112] So strong is this policy of bringing under regulation all uses not specifically made nonregulatable, that the Commissioner has subjected the applications from irrigators whose withdrawals antedated the act to the same review as other applications and has placed the same conditions in all stream irrigation permits without regard to the applicant's initial withdrawal date.[113]

The Commissioner's view is that he has yet to see an application in Iowa involving a vested right. A moment's reflection reveals that this is by no means the admission of an administrative blind spot. Considering the fact that domestic uses are exempt from regulation,

111. Iowa Code § 455A.21 (1962).

112. Lest the Commissioner's position be overstated, it should be pointed out that although he doubts the existence of vested common law rights, he is still apprehensive about the potential havoc a court decision of unconstitutionality would work on the Iowa system. In his talk to the Soil Conservation Society of America in 1964, he gave voice to these anxieties and suggested the possibility of a statute of limitations on claimed vested rights as a possible cure for this problem. Bullard, *supra* note 102, at 5-6

113. Interview with Richard Bullard, Water Commissioner in Iowa City, Iowa, March 14, 1966.

and that under Iowa's riparian law the status of artificial uses was hopelessly uncertain, it is relatively unlikely that any user could substantiate a claim of a vested right to any particular quantum of water. Further, because "vested right" is merely a label used to describe rights that cannot be abridged constitutionally, as is developed later,[114] the Commissioner's position is probably sound from a constitutional law viewpoint.

However, the likelihood that the decision to disregard "vested rights" would be sustained by the courts today does not detract from the courage and wisdom demonstrated by the Commissioner and Council in arriving at the policy they did. At the time the decision was made the constitutional law was less clear, the practice in other states was uniformly contra and the language in the Iowa statute was formidable. In many ways the decision to start fresh in the allocation of water rights was almost a prerequisite to the development of a workable system. Elements of vestedness could be found in almost every application to make or continue a use. Any other result might well have reduced administration of the system to hopeless nit picking.

2. Uses Regulated

A second policy question addressed in the early stages of administration called for an interpretation of the regulatory coverage intended by the act. Deciding to what types of uses to extend the regulatory coverage intended by the act. Deciding to what types of uses to extend the regulatory power was relatively easy, owing to the guidance furnished by the statute. The act makes fairly clear in several places the intent to cast the umbrella of regulation over all water uses except those specifically nonregulated. For example, section 455A.25(2) specifies in broad terms the water uses for which a permit is required, and 455A.26 extends this coverage by providing that "No person shall take water . . . for any purpose other than a non-regulated use" without a permit.

Yet other portions of the act use the term "depleting use"[115] and, although this is broadly defined, there remains some connotation of a use which consumes a portion of the water withdrawn. Likewise, some argument might be made that "taking"[116] water does not refer to situations where the whole amount of the water diverted is re-

114. *See* discussion accompanying notes 228-260.

115. See Iowa Code §§ 455A.1, .32 (1962).

116. Iowa Code § 455A.26 (1962).

turned to the source. The point of exercise in semantics is to demonstrate that, had the Commissioner so desired, he probably could have justified, within the terms of the act, a regulatory policy that required permits of only those users whose use was source depleting. Precedent for such a decision can be found in the actions of water regulation bodies in other states.[117]

The Iowa agency did not attempt to pursue a course of restricted regulation, however, and for good reason. First, as indicated above, the statutory language is fairly clear. Secondly, and more important, reading the act as an entity reveals a pervading intent toward comprehensiveness in the handling of the state's water resources. Any other construction would have been unfaithful to one of the major purposes of the statute, obtaining adequate information on the water demands of Iowa users. On a more pragmatic level it might be noted that even if consumptive users only were to be regulated, some sort of investigation would be necessary of other users to determine if their uses are non-consumptive. For whatever cause the decision was made, it is to the credit of the Commissioner and the Council that all users except those within the non-regulated classes are required to obtain a permit to continue their use.[118]

Another illustration of the drive to bring within the regulatory ambit all water use not expressly exempt is found in the Commis-

117. *See* Ellis, *supra* note 93; Fisher, *supra* note 87.

118. In their reports the Council divides uses under regulation into five categories: Highway Construction, Industrial, Irrigation, Recreation and Storage. In the statistical study of Council records the decision was made to exclude Highway Construction applications from consideration entirely. The justifications for this choice are fairly obvious when the nature of the highway construction use is considered. In the first place, the total number of highway applications exceeds the total of applications for all other uses combined. More important, the use involves a very small amount of water for a short period of time. Finally, the Highway Construction permits are granted under somewhat different standards than other permits because of their volume and relatively insignificant impact on the overall water resources. Also as is discussed later, the Commissioner has considered recommending the exemption of highway construction from the permit requirement.

Another decision made early in the study which affects the statistical materials reported herein was the subdividing of the categories of Industrial and Irrigation into five and three components respectively. Wherever the tabulations of the Council's records are reported by use a total of twelve categories will be utilized. The classifications are mutually exclusive. Thus, for example, a reservoir used for recreation is classed as recreation and not storage. Most of the classifications are self-explanatory, but two deserve special comment. As is shown by Table 3, note 133 *infra*, power production is by far the largest use of water. In most cases the water is used for cooling power production machinery. Recreation use refers to diversions of water for recreational purposes. Flooding duck marshes is the most common examples of such use.

sioner's policy in handling municipal and industrial users who, by reason of having increased their use in excess of the statutory minimums,[119] become subject to regulation. Although some arguments

The tables below show the volume and distribution of permitted uses in Iowa. The first table shows, by use, the total number of original applications for permits and renewal applications granted up to June 30, 1965; the second table shows the permits actually in effect on that date. The difference in the numbers shown by the two tables is attributable chiefly to the termination of permits through expiration or other cause.

TABLE I

Original and Renewal Applications Granted to June 30, 1965

Use	*Orig.*	*Ren.**
Industrial		
Materials Production	358	63
Power Production	33	7
Food Processing	28	4
Manufacturing	33	8
Air Conditioning	11	2
Irrigation		
Farms	507	360
Golf Courses	32	14
Specialty Crops	92	54
Municipal	108	11
Recreation	35	15
Storage	526	10
Other	18	3
Totals	1781	551

* Renewal here includes applications requesting modifications.

TABLE 2

Permits in Force On June 30, 1965

Use	*Permits*
Industrial	
Material Production	298
Power Production	31
Food Processing	29
Manufacturing	29
Air Conditioning	9
Irrigation	
Farms	422
Golf Courses	33
Specialty Crops	73
Municipal	105
Recreation	28
Storage	523
Others	6
Total	1586

119. Iowa Code §§ 455A.1, .25(4) (1962).

have been made that only the increased use should be regulated, the Commissioner asserts jurisdiction over the entire municipal use.[120] Looking at the question from the perspective of the overall goals of the statute, it is difficult to quarrel with the Commissioner's policy.[121]

Very little trouble has been encountered in identifying nonregulated uses. Only once has a question arisen concerning the legitimacy of a user's claim to exempt status. The precise issue was the construction to be given the phrase "livestock and domestic animals" used in the definition of nonregulated uses. The user involved, who ran a commercial feed lot in which a sizeable number of cattle were confined, asserted that his use of water in connection with the livestock was exempt under the statute. The Council sought advice from the Attorney General's office and received a letter opinion ruling that the use was not exempt.[122]

Although regulation of all uses appears to be the general policy,[123] there are at least two instances where this is not true in

120. Interview with Richard Bullard, Water Commissioner, in Iowa City, Iowa, March 14, 1966. Raising some questions concerning this policy see O'Connell, *supra* note 89, at 621.

121. Another example of the Commissioner's policy favoring maximum inclusion of uses above the 5000 gallon floor may be found in the handling of nonregulated industrial and municipal uses. Under the Commissioner's application of the act, exempt industrial and municipal users can become subject to regulation in three ways. They may voluntarily apply for a permit, and they may be required to seek a permit if their daily use increases beyond the statutory limit or if they change the source of their water. This latter rule is apparently premised on the theory that the statutory exemption continues only so long as conditions do not change markedly, but it finds no direct support in the statute. Considering the significant effect on the state's water resource that would result from a large city or an industry requiring large amounts of water changing its water source from wells to a river even if no increased use resulted, the Commissioner's policy seems eminently reasonable.

The statute contains no express provisions for policing the use of municipalities and industries that are initially nonregulated. Municipal increases may be discovered through Health Department records, however, detection of changes in industrial use is generally dependent on the good faith of the industrial user. Complaints from other users might also reveal use changes by nonregulated users.

122. Iowa Att'y Gen. Rep. 217 1960. The user later applied for and received a permit.

123. It is difficult to express in meaningful terms the amount of water that might be used if permitted users were to take water to the full extent of their permits. Any attempt is necessarily crude and involves numbers of astronomic proportion. The following table is a modest effort to depict the amount of water that could potentially be used if all permitted users took water to the maximum of their reasonable needs. Calculating this obviously involves some value judgments as to what portion of his authorized use a user is reasonably likely to withdraw at a particular time. For

fact or is not desirable from the Commissioner's viewpoint. These two situations are the storage of water and the use of water in highway construction.

The withdrawal or diversion of water for storage requires a water permit under the general provisions of section 455A.25(2). There are thousands of farm ponds in the state that technically fall within this section, yet they are much too small to have any significant effect on overall water resources.[124] The Council felt that it would not be practical to require each of these landowners to obtain a permit. They, therefore, initially exempted all impoundments storing less than ten acre feet of water.[125] About a year later the

example, an irrigator may reasonably withdraw his entire annual amount in one month, while a food processing industry is likely to have a stable rate of withdrawal throughout the year. The calculations below, for the month of June, 1965, show a potential use of approximately 100 billion gallons of water.

TABLE 3

Potential Permitted Use
During June, 1965

Use	*Amount* (in Millions of gal.)
Industrial	
Materials Production	8,898
Power Production	40,177
Food Processing	656
Manufacturing	2,235
Air Conditioning	67
Irrigation	
Farms	21,036
Golf Courses	228
Specialty Crops	1,302
Municipal	3,829
Recreation	175
Storage	20,484
Other	5
Total	99,092*

*Total does not include two permits for displacing underground water for purposes of natural gas storage involving nearly ½ billion cubic feet of water per day.

124. The 523 storage permits in force on June 30, 1965 involved a maximum storage potential of 63,000 acre feet of water. Thus the average size of the reservoirs under permit is only about 120 acre feet of storage.

125. Interview with Richard Bullard, Water Commissioner, in Iowa City, Iowa, March 14, 1966. When the structure required to create the requested impoundment falls within the purview of Iowa Code § 469 (1962), the Commissioner's policy is to delay action on the permit application until an order is obtained from the Council approving the structure.

Council increased the regulatory floor to eighteen acre feet of permanent storage.[126]

The use of water in connection with highway construction often exceeds five thousand gallons of water per day, and for these projects a water permit is required.[127] This is the second situation where the Commissioner has expressed a willingness to forgo regulation. These permits are granted for the period of the construction work, which is usually only one year, and within the construction season of April through December. They also call for a relatively small amount of water. Through the first half of 1965, about thirteen hundred highway construction permits were granted allowing a total usage of less than eight thousand acre feet of water.[128] The principal difficulties in the situation stem from the peculiar nature of the contracting business. The contractor making the successful bid on many of these highway projects is eager, if not required, to begin construction almost immediately after winning the contract. Forcing him to wait until a permit is issued which must necessarily be longer than the thirty days required for notice, may result in costly disruptions in the schedules of both the contractor and the highway commission. For this reason the Water Commissioner has developed a streamlined application process for highway construction permits.[129]

At the time the simplified application procedures were adopted, the alternative of exempting highway construction use completely

126. A Natural Resources Council policy, adopted Feb. 13, 1959, limits permit requirements to structures which provide permanent storage for more than 18 acre feet or which impound more than 25 acre feet below the level of the emergency spillway. A later statement of policy in the Council's Procedural Guide extends the permit requirement to structures in the drainage area of a municipal or industrial water supply reservoir if the structure has a drainage area of more than 15 acres or provides more than 5 acre feet of permanent storage.

127. Iowa Code §§ 455A.1, .26 (1962).

128. This may seem like a substantial amount of water, but when compared with the *monthly* maximum permitted use for the 528 irrigation permits in effect June 30, 1965 of approximately 70,000 acre feet, it can be seen that highway construction uses a relatively inconsequential amount of water.

129. The Highway Commission makes the application and obtains the permit which is later assigned to the successful bidder. No investigation is made of the water supply. Instead of the precise source being stated, the contractor is allowed to take water "from any stream or watercourse on the right of way of the road being constructed and roads within one mile of the road being constructed." Provision is made requiring "the natural downstream flow of the stream be maintained a minimum of 10 hours each day if material damages are caused by continuous reduction of the stream flow."

on the ground that the amount of water involved did not justify regulation was also considered by the Council. At that time it was the Council's judgment that such an amendment would be unwise because it would stimulate requests for exemption from many other users. The Commissioner has since indicated a willingness to consider excluding highway construction users from coverage by the act, although the amendments proposed by the Council in 1965 included no such exclusion.[130] Although the Commissioner would prefer not to have to regulate highway construction uses, apparently the earlier pandora's box theory of amendments creating exceptions still prevails.[131]

3. Regulation Imposed

Having decided the range of uses to subject to regulation, the Iowa authorities next had to wrestle with the problem of the amount of regulatory power to exercise in regard to these uses. Basically, two questions were presented: (1) What standards should be applied to determine whether a permit should be issued, and (2) What limitations should be placed on permitted uses. These matters are obviously mutually dependent to a considerable degree. The policy established regarding who will get a permit is directly affected by what sort of limitations may be placed on a permitted use and the extent of limitations required depends in great measure on the relative tightness or looseness of the permit issuing policy. To complicate matters even more, both of these questions are vitally affected by the policy established concerning the "rights" created through granting of a permit.

Standards. The statute is replete with terminology purporting to guide the Commissioner in his decision whether to authorize a regulated use through granting a permit to the user. The most specific direction is found in 455A.21 which provides "In the con-

130. *See* Bullard, *supra* note 102, at 7; Iowa Acts 61st G.A. ch. 372 (1965).

131. Another alternative for handling the problem might be to grant a single permit to the State Highway Commission for all water use associated with state highway construction during the course of one construction season. Similar permits could be granted to county road authorities. These master permits would contain the restrictions considered essential in regulating this type of use and then the primary burden of policing these restrictions could be shifted to the agency obtaining the permit. Such a procedure would require a little stretching of the current water law, but liberal construction of the act is not without precedent in its administration.

sideration of applications for permits by regulated users, the declared policies and principles of beneficial use, as set forth in this chapter, shall be the standard for the determination of the disposition of the applications for said permits."[132] Accepting the mandate of this provision, the problem becomes one of determining what are the "declared policies and principles of beneficial use" expressed in the act. Looking first to the declaration of policy in the act, the following policy is articulated: "It is hereby declared that the general welfare of the people of the state of Iowa requires that the water resources of the state be put to beneficial use to the fullest extent of which they are capable. . . ."[133]

Later in the same section, after declaring that the control, development and use of a water are to be regulated by the state, the act states that the state "shall take such measures as shall effectuate *full* utilization and protection of the water resources of the state of Iowa."[134] These policy standards seem to indicate a desire to allocate use of the state's water to those persons who can put it to its fullest or most beneficial use. Even the definition of "waste" seems to reflect this policy. Waste is defined to include the taking or using of water "in any manner so that it is not put to its *full* beneficial use."[135]

The patent difficulty with such lofty statements of policy is their failure to provide any hint of the frame of reference by which the beneficiality of a use is to be judged. Is the question of full benefit to be decided solely by economic criteria,[136] or is some notion of seeking maximization in the attainment of recognized societal goals intended? Perhaps purely esthetic standards should be used. The Council is directed at one point in the statute to establish and en-

132. Iowa Code § 455A.21 (1962). A similar directive is found in the definition of "Permit" in § 455A.1 where that term is said to mean a written authorization "limited as to quantity, time, place, and rate of diversion, storage or withdrawal in accordance with the declared policies and principles of beneficial use set forth in this chapter." Iowa Code § 455A.1 (1962).)

133. Iowa Code § 455A.2 (1962).

134. *Id.* (emphasis added).

135. Iowa Code § 455A.1 (1962) (emphasis added).

136. Ciriacy-Wantrup, *Concepts Used as Economic Criteria for a System of Water Rights,* in The Law of Water Allocation in the Eastern United States 531 (1958); Heady & Timmons, *Economic Framework for Planning Efficient Use of Water Resources,* in Iowa's Water Resources 47; Hirshleifer, De Haven & Milliman, Water Supply—Economics, Technology and Policy (1960).

force a comprehensive state-wide plan for the *"optimum"* control, protection, development, allocation, and utilization of the states water resources.[137] Could it be that the statute contemplated that the Council would, in creating such a plan, develop standards for measuring the relative benefit to the state derived from various types of water uses?

Section 455A.18, in assigning the Council jurisdiction over water use applications, directs the investigation of the effect of any regulated use upon the state's comprehensive plan for water resources. Coupling the idea of a comprehensive state plan with the policy declarations in favor of optimum water use suggests that a sound argument could be made that the legislature intended the formulation of standards for distinguishing between uses on the basis of their respective beneficialness.

The Commissioner and the Council have elected to place a different interpretation on the statute, one that requires practically no discrimination among uses on beneficialness grounds.[138] Although never specifically articulated, the Commissioner has consistently pursued a policy of granting permits on a showing by the applicant that he can put the amount of water requested to a beneficial use. As defined by the act and applied by the Commissioner, beneficial use is a very broad standard. In effect, all uses not wasteful or causing pollution are beneficial. Most revealing of the practical effect of this policy is the fact that in ten years of administration only two applications for permits have been denied, and both of these situations involved the disposition of drainage waters, not the use of water.[139] Thus, to

137. Iowa Code § 455A.17 (1962).

138. Interview with Richard Bullard, Water Commissioner, in Iowa City, Iowa, March 14, 1966.

139. Both of the applications denied involved the disposal of excess surface waters through the use of drainage wells. Section 455A.25(3) of the Iowa Code requires a permit for any person who diverts water from the surface directly into any underground watercourse or basin. An amendment in 1965 requires the approval of the Water Pollution Control Commission before a permit to divert waterground can be issued. Iowa Acts 61st G.A. ch. 375 § 34 (1965).

There have been only four applications for drainage well permits to date, two of which have been denied. The Commissioner has said that the general policy is to refuse such permits because of the danger of contamination of the underground water supplies relied upon by 85% of Iowans for their drinking water. *See* Bullard, *supra* note 102, at 4.

The permit requirement is limited to new constructions, however, and a drainage

date, not a single application to divert, store or withdraw water has been denied.

This liberal policy of permit issuance is not without substantial support in the statute. As mentioned earlier, 455A.21 directs that the standard for determining the disposition of permit applications is one of beneficial use, and beneficial use is specifically defined in a broad fashion. Even stronger support for the Commissioner's approach is found in 455A.20 which directs the Commissioner to grant the permit if certain findings are favorable to the applicant. It is fairly clear that this direction to grant the permit is limited by the provisions of 455A.22-.24 dealing with safeguarding streamflows, but it would seem the Commissioner reasonably takes the position that the regulatory scheme contemplated by the statute is effectively negative in its operation. That is, an applicant should be granted a permit unless certain specified conditions exist. The current determinations written by the Commissioner clearly illustrate the policy being followed. After describing the use requested and reciting the applicant's ability to put the water to beneficial use, there follows a recitation negating the existence of four or five factors, which under the act would require denial of the permit.[140]

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well existing at the effective date of the act may continue in operation without a permit if it does not create waste or pollution. This distinction created an interetsing situation in one of the two cases in which a permit was denied. It seemed that the applicant had been draining a 27 acre tract into a drainage well prior to the passage of the act. Later he applied for permission to drain stagnant water from another 30 acre field. Several landowners objected at the hearing on the ground that their water wells were in danger of being polluted. Test pumpings from nearby wells revealed no pollution from the current operation, yet the Council found "an imminent danger of pollution of an underground basin or watercourse utilized as a source of public and private water supplies," and upheld the hearing officer's decision to deny the permit. Thus, the old drainage operation was legal because pollution was not proved, but the application for additional drainage was turned down because the absence of future pollution was also not proved.

140. A typical determination by the Water Commissioner will contain a paragraph similar to the following excerpt from a recent determination:

> The ability and intent of the applicant to devote a reasonable quantity of water to a beneficial use seems evident. There is no evidence that the use of water pursuant to a permit granted in accordance with the conclusions contained herein (a) will constitute a waste of the water resources of the State, (b) will be incompatible with the state comprehensive plan for water resources, (c) will impair the effect of pollution control laws of this state or the navigability of any navigable watercourse, or (d) will be detrimental to the public interest or to the intertests of property owners with prior or superior rights who might be affected.

The philosophy of administration represented by the Commissioner's refusal to discriminate among types of users raises some questions. For example, it might be asked, if all the Commissioner does is issue a permit to every user who applies for one, what function does the regulation perform? Aren't we spending a good deal of the taxpayers money and inconveniencing water users to a considerable degree for no apparent purpose? The Water Commissioner has some rather convincing answers to such questions. Substantial regulatory functions are performed by the agency. These are discussed in the next section. Besides these, the regulatory agency is accomplishing three things that more than marginally justify its existence. First, it is establishing firmly among Iowa users the principle of central administration of water resources. Although in absence of real water shortage it may be a little early to tell, it would seem the work of the Commissioner has won complete public acceptance of the idea of water regulation in Iowa. Second, the Commissioner has accumulated and systematically recorded ten years of information concerning the uses made of Iowa's water resources. Looking to the future when more refined regulation may be required, this information will be invaluable.[141] Third, the administration has had a substantial impact on both the development of new supplies of water and the more efficient use of existing supplies. Investigations of the Commissioner have tended to highlight situations where applicants lacked sufficient, reliable water supplies to carry on the activity they contemplated. Similarly, such investigations have revealed defects in water diversion and withdrawal methods that resulted in water waste.[142]

In view of the herculean proportions of any program directed toward developing standards for measuring the beneficial use of water, it is understandable why the Iowa authorities shied away from such an undertaking in the early stages of administration. As time passes and water demands continue to increase, the time may be

141. *See* Bullard, *supra* note 102, at 9. If this study did nothing more than furnish the occasion for systematically recording the data in the Commissioner's files in a form in which they could be readily researched and analyzed, the study was probably worth the energy and money expended. The relevant information concerning the first nine years of application is now contained on a computer tape, available to be retrieved in a matter of seconds.

142. Interview with Clifford Peterson, Deputy Water Commissioner, in Iowa City, Iowa, January 31, 1966.

close at hand when reconsideration of this policy will be required. Experience in other areas has shown that such standards are much more easily established before the problem regulated reaches crisis dimensions. It might be noted in this regard that the newly created Water Pollution Control Commission is currently struggling with the problem of establishing water quality standards for Iowa waters.[143]

Regulating Permitted Uses. Because examination of the Commissioner's handling of regulated uses reveals a virtually automatic issuance of permits, it should not be assumed that the activity of the Commissioner in the granting of permits is purely ministerial. Although every applicant has received a permit, they have by no means always been allocated their total request. The act specifically directs the Commissioner to exercise his discretion in regard to the duration of the permits granted and the amount of use authorized,[144] and this discretion has frequently resulted in the paring of an applicant's request for water in respect to the total amount of water sought, the requested time of withdrawal, the rate of withdrawal, or any combination of the three. Often the necessity to reduce some aspect of the requested use results from the applicant's ignorance regarding the amount of water his use reasonably requires. In the early days of administration, permit durations were often sharply limited, but this has been relaxed considerably in later years.[145]

Besides this sort of screening process, the Commissioner also normally includes one or more of a variety of conditions in permits,

143. *See* Morris, The Pollution Situation and Controls in Iowa, Paper presented at Seminar on Iowa's Water Resources: Pollution Control and Abatement, Iowa State University, November 10, 1965.

144. Iowa Code § 455A.20 (1962).

145. At the outset of administration the Council determined to move ahead slowly in so far as the durations for which permits were granted were concerned. Thus initial irrigation permits were granted for three-year terms. In 1960 the Council by Motion 60-160 adopted a policy extending the time for which irrigation permits were to be granted to seven years. At the same meeting, Motion 60-161 authorized the granting of 10-year permits for Municipal and Industrial use. In 1963, by Motion 63-29, the Council decided to authorize 10-year irrigation permits where the water source was ground water or a reservoir.

The table on page 536 generally documents the enforcement of the Council's policies concerning irrigation uses. The table shows, in twelve-month ranges, the amount of time requested by applicants for all types of irrigation use and the amount of time actually granted in the permit. In the later years the figures are very close owing to the loosening of the Council's policy toward duration of irrigation permits and effective pre-application counseling by the water authorities.

the nature of the conditions depending on the type of use involved.[146] Often these conditions are simply reminders of the obligations im-

TABLE 4

Duration of Irrigation Permits
Time Requested and Time Granted

		1-12	13-24	25-36	37-48	49-60	61-72	73-84	85-96	97-108	109-120
1											
9	Req.	0	0	0	0	0	0	0	0	0	3
5											
7	Gr.	0	0	3	0	0	0	0	0	0	0
1											
9	Req.										104
5											
8	Gr.			38		65					1
1											
9	Req.					1					308
5											
9	Gr.		2	174		132					1
1											
9	Req.			1							102
6											
0	Gr.			74		29					
1											
9	Req.		1					1		1	37
6											
1	Gr.		1			2		37			
1											
9	Req.										132
6											
2	Gr.							1	130		1
1											
9	Req.										175
6											
3	Gr.			1				101			73
1											
9	Req.			1	1			1			149
6											
4	Gr.			1	1	2		23			125
1											
9	Req.										41
6											
5	Gr.							8			33

146. Illustrative of such conditions are the requirements routinely inserted in the permits of materials producers. The use and discharge of water in the production of construction materials such as sand, gravel and rock, has caused several problems for the Commissioner. These uses are basically non-consumptive, yet they may cause both qualitative and quantitative harm to other users. Where washing operations return water into a stream, damage may be caused if the water has a high content of impurities. These impurities may settle out quickly causing the stream channel to become filled or they may remain in suspension and cause turbidity that is harmful to aquatic life

posed by the act such as the duty to file periodic use reports,[147] or the duty to avoid violation of the state pollution control laws.[148]

One regulatory prerogative not granted the Commissioner or Council is the power to grant temporary permits in time of emergency. The Commissioner may suspend a permitted use during an emergency[149] but he cannot authorize a new use. The Commissioner does not yearn for such a power, in fact he is grateful not to have it.[150] The explanation for this attitude is generally couched in terms of the numerous pressures that would be brought to bear on the administrator to exercise the power if he possessed it. Although it is not difficult to sympathize with the Commissioner's apprehensions, it is less easy to applaud the concept of administration they reveal. To paraphrase a former President, kitchens are designed to be hot places.

Consumptive Use and Protected Flow. All of the regulatory practices that have been mentioned thus far pertain equally to all types of uses. However, the principal thrust of the Commissioner's

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and generally restricts use of the stream water. To quard against this possibility, permits issued to materials producers contain a provision similar to the following clause:

> "With the exception of reasonable quantities of water lost in processing the materials produced, water withdrawn pursuant to this permit shall be discharged into an unnamed tributary of the Des Moines River on the land described herein, shall be of suitable quality, and shall be so discharged as to preclude flooding or other adverse effects."

A corrallary problem occasionally caused by materials is the dewatering of the aquifers from which the materials are being extracted. Little data is available on the effect of dewatering on ground water supplies in the area, therefore, permits granted to materials producers carrying on dewatering operations require the permittee to keep records on his dewatering.

147. The requirement of reports is made a condition of the permit under the rather vague authority of § 455A.28(2). Collection of water use reports is one of the important facets of the Iowa regulatory scheme. Thus far time and manpower limitations have prevented compilation and analysis of these reports. No formal procedure has been adopted for verifying the accuracy of the use reports.

148. *See* Iowa Acts 61st G.A. ch. 375 (1965).

149. Iowa Code § 455A.28(3) (1962).

150. *See* Bullard, Continuing Needs For Water Law Administration, Paper presented at the 19th Annual Meeting, Soil Conservation Society of America, Jackson, Miss., Aug. 26, 1964, p. 6. It is somewhat hard to understand how an emergency power to grant permits differs greatly from the power already possessed under § 455A.28(3) to suspend permits in time of emergency. Thus far, the only situations in which an emergency power might have been useful have arisen in connection with the discharge of excess water from construction projects. A building contractor who strikes water in excavating a foundation could hardly be expected to wait 30 days to obtain a permit because pumping out the accumulated water involves the discharge of more than 5000 gallons. To date, the Council's policy in such cases has been to simply overlook this technical violation of the act and allow the contractor to discharge the water.

regulation of permitted uses emanates from a policy decision to differentiate between certain uses on the basis of their relative consumptiveness. "Consumptive use" is a term used by the Commissioner to describe withdrawals from a stream of substantially more water than is returned. The statutory term "depleting use" is defined much too broadly to accomplish the desired regulatory result.[151] Section 455A.22 provides the basis for this crucial regulatory distinction. That section limits the authority to issue permits for uses of water from a stream to cases where the protected flow of the stream is preserved. The effect of classification as a consumptive use can be appreciated only if the concept of a protected flow is fully grasped. "Protected flow" is the abreviation used by the Council to describe the concept denominated "established average minimum flow" by the act.[152]

According to the Commissioner, the protected flow is designed to provide "adequate protection to the supply of water for ordinary household, poultry, livestock and domestical animal uses, for fish and wildlife, for recreational and esthetic uses of the river, for pollution control and dillution of wastes, and for other uses of a public nature."[153] In short, the idea is to assure, to the extent possible, that the flow in every stream in the state is maintained at a level sufficient to satisfy demands of the type specified above. In order to accomplish this it is necessary to calculate the minimum stream flow that will satisfy these demands and then protect that flow by preventing withdrawals by any permittee whose use would diminish the flow below the protected level.

151. Iowa Code § 455A.1 (1962) includes in the definition of "depleting use," any use of water that "might impair the natural resources of the state or might injure the public welfare if not controlled."

152. Iowa Code § 455A.1 (1962) provides:

> "Established average minimum flow" means when reasonably required for the purpose of this chapter, the council shall determine and establish the average minimum flow for a given watercourse at a given point thereon. The "average minimum flow" for a given watercourse as used in this chapter shall be determined by the following factors: (a) Average of minimum daily flows occurring during the preceding years chosen by the council as more nearly representative of changing conditions and needs of a given drainage area at a particular time; (b) minimum daily flows shown by experience to be the limit at which further withdrawals would be harmful to the public interest in any particular drainage area; and (c) those minimum daily flows shown by established discharge records and experience to be definitely harmful to the public interest. Such determination shall be based upon available flow data, supplemented, when available data are incomplete, by whatever evidence is available. . . .

153. Bullard, *supra* note 150, at 3.

It is at this point that the dichotomy between consumptive and nonconsumptive users becomes relevant. It stands to reason that the only permittees whose uses endanger the protected flow of a stream are those who take out substantially more water than they return. The user who temporarily diverts the flow of the stream without lessening the amount of water passing downstream from his diversion poses no threat to the maintenance of the protected flow. Therefore, only permittees making consumptive uses should have their permits conditioned on the continued availability of water above the minimum protected flow. This is the construction the Water Commissioner has consistently given to the 455A.22 requirement through the creation and application of the consumptive use test, with the result that all permits involving such uses are specifically made subject to the requirement of preserving the protected flow.[154]

Only two problems are apparent in this eminently rational policy. One concerns the standards employed to determine what uses are consumptive. To date, the only use of Iowa waters classified as consumptive is irrigation. None could realistically question the valadity of this classification as irrigation is as nearly consumptive a water use as is made in this region. Yet, is it the only use that deserves the consumptive classification? Municipal consumption of water may run as high as 15 per cent and some processing industries consume substantial amounts of water.[155] Notions of equality of treatment among users would seem to suggest that each use that has a consumptive character should be subjected to the same protected flow requirements, but this begins to touch on the priority questions discussed in the following section.[156]

The second potential problem with the policy of regulating consumptive users to preserve a certain protected flow concerns the level at which that flow is set. If the flow is set unreasonably high, the interests of regulated consumptive users are substantially prejudiced. Another of the critical early policy decisions made was the selection of the method to be used to establish the protected flows in all of the

154. Interview with Clifford Peterson, Deputy Water Commissioner, at Iowa City, Iowa, Jan. 31, 1966.

155. *See* Davidson, *Demands For and Uses of Water in Industry,* in Iowa's Water Resources, p. 71; O'Connell, Iowa's New Water Statute 553-56.

156. A look at the breakdown of permitted uses by sources of water supply shows that most users rely on groundwater rather than streams for their water supplies. Still, the number of uses relying on streams is substantial enough that a good likelihood exists for local situations where irrigators, consumptive industries and municipalities may be in competition for the water of a particular stream when the flow is at a low ebb.

streams in the state. Once again, the Council made a valuable contribution to the success of the regulation by devoting to the matter the care and study it deserved and thereby arriving at a readily supportable procedure.[157]

The procedural guidelines set forth in the act for determing the protected flow permitted the Council a good deal of latitude. In essence the statute directed the Council to consider the available flow data relating to each watercourse and to reckon what level of low flow occurring during typical years is the point below which further withdrawals from that stream would be harmful to the public interest. Established discharge records and available information revealing experience relating to the effect of various low flows were the sources to be primarily utilized, although when these were lacking, any evidence available could be used.[158]

It has been Iowa's good fortune to be extremely well served by the United States Geological Survey. The value of this level of serv-

TABLE 5

Permits in Force June 30, 1965
by Use and Source

Use	*Stream*	*Well*	*Reservoir*
Industrial			
Materials Prod.	69	12	261
Power Production	9	31	0
Food Processing	0	32	0
Manufacturing	5	33	2
Air Conditioning	0	12	0
Irrigation			
Farms	160	243	35
Golf Courses	6	23	6
Specialty Crops	30	36	11
Municipal	7	105	6
Recreation	12	17	3
Storage	1	2	542
Other	4	4	0
Total	303	550	866

157. Protected flow requirements should not be confused with the provisions often written into highway construction permits, see note 128, *supra,* nor with the provisions commonly included in storage permits for on stream reservoirs—impoundments created by damming a watercourse. The provision used in storage permits usually reads somewhat as follows: "Permittee shall provide for the downstream discharge of that portion of the natural flow in said unnamed watercourse that is required to prevent material damages to down stream users." The purpose of both such requirements emanate from the same rationale as that behind the protected flow rule, but they are not directly related to any established level of flow.

158. *See* definition of "established average minimum flow" set forth in note 152 *supra* which embodies the procedure for setting the flow.

ice became apparent in the course of determining the protected flows. The U.S.G.S., in cooperation with other interested groups, maintains flow gaging stations on about one hundred major Iowa streams. Records from these gages extend over a twenty-five year period. Low flow measurements from these records constituted the primary data used in setting the protected flows on these major streams. Following the passage of the Water Rights Law, a program of miscellaneous low-flow measurements at about 450 additional locations was initiated by the U.S.G.S. in cooperation with the Council. Flow information obtained from these gaging points is used to set minimum flows on smaller streams and tributaries comparable to the established protected flows in the major streams[159]

Generally, the procedure used for setting the base protected flows for major streams involved the development of low frequency and duration curves for each stream for which adequate low flow information was available. These calculations were prepared by the U.S.G.S. in cooperation with the Council and published in 1958 as a bulletin entitled "Low-Flow Characteristics of Iowa Streams." The Council then reviewed these figures in cooperation with the state geologist, and representatives from the Department of Health, the Conservation Commission, and other interested bodies. The purpose of the consultations was to achieve consensus on a level of average stream flow that should be protected on a state-wide basis, subject to adjustment for local peculiarities. The level of flow settled upon as adequately protective of the public interest was a flow level equaled or exceeded by the stream involved 84 per cent of the time between April and September in the past years determined to be most representative of normal conditions. This 84 per cent figure means that in charting on a graph the low flow records of a particular stream during the April through September period, the discharge rate of the stream would exceed or equal the flow established as the protected flow 84 per cent of the time.[160]

In applying the 84 per cent standard to establish the minimum protected flow of each stream, the individual characteristics of that stream were considered. The 84 per cent guide was adjusted up or down according to the demand of the public interest in each case.

159. *See* Bullard, Operation of Iowa's Water Rights Law, Paper presented at the 116th Meeting of the Missouri Basin Inter-Agency Committee at Sioux City, Iowa, Dec. 15, 1960, p. 2 (Mimeo).

160. Interview with Sulo Wiitala, United States Geological Survey, in Iowa City, Iowa, May 13, 1966.

Before finally setting the stream flows for individual streams, the suggested protected flows were circulated to the various interested agencies for their comments and suggestions. Once substantial agreement was obtained on the reasonableness of the level set for a particular stream that level was adopted and recorded. A somewhat rough approximation of what the protected flow means as a practical matter is that it is a level of minimum flow which, under natural conditions, has a 50 per cent chance of occurrence in any given year.[161]

If a consumptive user understands what the protected flow means in terms of the statistical likelihood of his having water when he needs it, he is in a position to make a decision whether to rely entirely on the stream or seek supplemental water sources. Thus, he may determine that the approximately one-in-five chance of the stream flow diminishing to a point where he cannot make withdrawals does not justify the costs associated with digging a well or constructing storage facilities, or he may arrive at a contrary decision.[162] The important point is that he has some reasonable basis on which to evaluate his alternatives.

Having established the base minimum protected flows in the major streams, the flow setting work of the Council effectively was ended. However, the work of the Commissioner and his staff was just beginning. It should be understood that the base protected minimum flows set were originally expressed in terms of a measurement taken at the most downstream gage established on the stream. This figure by itself had little meaning in reference to the minimum flow requirements to be imposed on a user on a tributary many miles upstream. To enforce the protected flow requirement, the Commissioner must calculate an equivalent protected flow for each consumptive user. The protected flow at any point of withdrawal is determined by comparing the drainage area of the stream at that point with the drainage area at the downstream gaging point, taking into consideration the drainage characteristics of the watershed.[163] These

161. *See* Bullard, *supra* note 150, at 3.

162. The one in five chance referred to is derived from the approximately 20% chance that the established protected flow will be reached or gone below in any normal irrigation season. Also to be considered is the timing of the likely need for supplemental irrigation. For example, if the crop for which irrigation may need is of a type that matures before the stream ordnarily reaches its low point, the irrigator may be running much less than a 20% risk. Another point to be considered is the level of loss likely if supplemental irrigation from the stream is not possible when needed.

163. Interview with Clifford Peterson, Deputy Water Commissioner, in Iowa City, Iowa, January 31, 1966.

calculations are made easier by the availability of inclusive drainage data on all Iowa streams having a drainage area of more than five square miles.[164] Calculation of the equivalent flow is also aided by information obtained from the many partial-record gaging stations scattered around the state.

In practice, the precise protected flow at a given point of withdrawal is not calculated at the time a consumptive use permit is issued. Rather, the permit expresses the limitation in terms of the minimum low flow set at the nearest established gaging point downstream from the permittee. Frequently, the permit further requires the permittee to cooperate with the Commissioner in establishing a gage to check his protected flow level.[165]

Only in time of water shortage does it become necessary to provide the permittee with some fixed standard for determining the protected flow at his point of withdrawal. The Water Commissioner's office is kept informed of stream gage readings around the state and generally also has first-hand information of regions where potential shortages are likely to occur. Usually the Commissioner's office has several weeks notice of the likelihood of flows below the minimum protected flow. During this time steps are taken to monitor consumptive uses and to prepare to advise consumptive users to shut down their operations. If the consumptive use is located near an established flow gage, the user is instructed to watch the gage and cease withdrawals when the flow falls to the level calculated as the equivalent protected flow at his withdrawal point.

If no regular gage is handy, the Commissioner will cause the installation of a staff gage at some location convenient to the user. The user will then be advised of the point on the staff gage at which he must stop his withdrawals. As the stream flow drops nearer to the protected flow, supervision is intensified and users are advised of the likelihood they will have to cease withdrawals several days prior to the time the minimum protected flow is expected to be reached. The final notification to suspend withdrawals is communicated to the user personally.[166]

Thus far this procedure has served to adequately safeguard

164. Iowa Highway Research Board, Bull. No. 7, Drainage Areas of Iowa Streams (1957).

165. A typical provision reads as follows: "It shall be the duty and responsibility of the permittee to cooperate with representatives of the Water Commissioner in establishing a convenient staff gage, and to determine by reference to this gage that his withdrawals do not violate the flow restriction imposed herein."

166. Interview with Deputy Water Commissioner by telephone, May 16, 1966.

against incursions into the protected flow. Whether it will function efficiently in a time of major drought is somewhat questionable, at least unless the Commissioner's staff is substantially bolstered.

One final regulatory policy developed to facilitate enforcement of the protected flow concept must be described to fully complete the picture. The Commissioner has created, more or less out of whole cloth, a principle of "summation flow" which he applies to consumptive users. To understand this policy, it first is necessary to know that the streams of the state have been divided administratively into smaller segments or reaches.[167] The summation flow rule comes into operation anytime more than one consumptive use is located within the same reach of a stream. When this is the case, the summation flow principle requires that the cut-off point for each of these consumptive uses will be the equivalent protected flow within the reach *plus* the sum of all other permitted consumptive uses.[168]

The justification for this regulation is elementary. If each users' restriction referred only to making no withdrawals below the protected flow, it is possible that unknowing simultaneous withdrawals by the two or more of them at a time when the available water was more than the protected flow, but less than the total of their uses, would penetrate into the protected flow. Through enforcement of the summation flow rule the Commissioner has much more effective control over withdrawals during periods of declining stream flow.[169]

To prevent the summation flow rule from causing unnecessary hardships, the Commissioner will allow uses below the summation-flow level if the users involved enter into a sharing agreement that assures preservation of the protected flow. A sharing agreement is

167. Streams are divided into general segments for administrative purposes because conditions at the source are obviously different than those far downstream. Natural divisions such as the point where one stream enters another are used to the extent practical. The point where a tributary joins a larger stream might define the end of the lowest reach of the tributary and perhaps the dividing line between two intermediary reaches of the main stream. A reach may therefore be quite short or may be as long as sixty miles.

168. Interview with Richard Bullard, Water Commissioner, in Iowa City, Iowa, March 14, 1966.

169. Typical permit provisions advising the permittee of the summation flow limitation read as follows:

> Permittee may withdraw water from the Maple River pursuant to this permit only when the natural flow therein exceeds a flow comparable to a mean daily flow of 50 cubic feet per second at the official gage on the Maple River at Mapleton, Iowa, by at least the combined rates of this and all other regulated withdrawals for depleting uses at points on the reach thereof designated by the Water Commissioner for administration of this restriction.

a contract binding all of the consumptive users within a particular reach of a stream to a predetermined plan for allocating the stream water during periods when the flow is between the protected flow and the summation flow.[170] To be recognized by the Commissioner a sharing agreement must be filed with him and receive his approval.[171]

Professor Jeffery O'Connell provided the following succinct illustration of the workings of the summation flow and the sharing agreement. No reason appears for trying to improve on his description.

> Assume a point on a stream where the protected flow has been determined to be one hundred cubic feet per second (cfs). In July, reports to the water commissioner's office indicate the protected flow is being threatened. Consequently, a representative of the Natural Resources Council is dispatched to a point upstream, where X, Y, and Z each has a permit to withdraw one cfs, in order to establish a staff gage at their point of withdrawal. The Council's representative determines that the flow at the point of X, Y, and Z's withdrawal comparable to the protected flow of one hundred cfs downstream at the permanent gage station is five cfs. X, Y, and Z are then advised that they will not be permitted to withdraw water unless the flow is at least 8 cfs, i.e., five cfs (the protected flow) plus three cfs (the total rate of withdrawal of the permittees). If the figure was set below eight cfs, the protected flow would be subject to incursion by simultaneous withdrawals by X, Y, and Z to the full extent of their permits. It is very unlikely, however, that all permittees whose withdrawals are subject to the protected flow at the same point will desire to withdraw continuously during the period of the requested withdrawals. Consequently, the Council has adopted a policy whereby X, Y, and Z may agree to divide up the available flow by time of withdrawal or amount of withdrawal, thus enabling each to withdraw on such a restricted basis down to the protected flow. Thus, when the

170. Typical permit provisions advising the permittee of the possibility of entering into a sharing agreement with other users read as follows:

> Upon the approval by the Water Commissioner of an appropriate plan binding upon this permittee and all other permittees who, when the plan is submitted, are authorized to withdraw water for depleting use from that reach of the Maple River designated by the Water Commissioner for administration of the restriction imposed herein, any permit granted may be temporarily modified so that regulated withdrawals of water may be made from said stream which will not reduce the flow therein to less than a flow comparable to a mean daily flow of 50 cubic feet per second at the official gage thereon at Mapleton, Iowa.

171. The sharing agreement is another administrative wrinkle introduced by the Council that finds no direct basis in the statute. However, it seems to be a rational and necessary extension of the principle of minimum protected flow.

> pertinent protected flow is near five cfs, without any agreement neither X, Y, nor Z could withdraw until the flow reached at least eight cfs. With an agreement to divide the available flow, however, when the flow was six cfs, for instance, each could obviously withdraw one cfs for eight hours a day or one-third for twenty-four hours a day or some other variant thereof.[172]

The only real difficulty with the summation flow-sharing agreement device is the opportunity it might provide for an obstreperous user to harass his neighbors. The sharing agreement must include all regulated consumptive users in the reach to obtain the Commissioner's approval. However, in any given year not all consumptive users may be making withdrawals. The effect of the requirements of unanimity associated with the sharing agreement is to permit one user, who may have no real interest at stake, to prevent the other users in the reach from voluntarily apportioning needed water among themselves. Except for this one possible reservation, the sharing agreement is a promising regulatory device for the reason that it coerces the users involved to work out their competing demands on a basis of mutual agreement. So long as only irrigators are affected, it is difficult to see how any priority system, other than one based on time of first use, could be instituted to allocate stream flow more pragmatically.

To date only three sharing agreements have been filed with the Commissioner. This paucity is probably attributable to the fact that so far there are relatively few stream reaches containing more than one consumptive user and the circumstance that there have been no periods of prolonged low stream flow since the passage of the act.[173]

172. O'Connell, Iowa's New Water Statute 576, p. 168.

173. Not only is there a relative lack of concentration of stream irrigation permits, but well irrigation permits far outnumber stream permits. Moreover, reservoirs are only infrequently used.

Before passing from the discussion of policy developed for regulating permitted users a word should be said about regulation of groundwater uses. Although considerable thinking has been devoted to the matter, the Council has not yet developed a policy for groundwater comparable to the minimum protected flow doctrine for streams. The peculiarities of certain groundwater acquifers are partially known, but reliable data is lacking concerning cause and effect relationships of various kinds and amounts of groundwater withdrawals on other groundwater sources. Well logs and numerous other types of basic information are being collected steadily. In a couple of instances protected head requirements have been included in the permits of well users withdrawing from an aquifer also used by a nearby municipality. Also, the Council has authorized test pumpings of wells to be conducted under the supervision of the Commissioner, but by and large, lack of trustworthy knowledge has resulted in a minimum of regulation of groundwater withdrawals to date.

4. Permittee's Rights—Priorities

One policy clearly evidenced by the Iowa Act is that the receipt of a permit to use water does not confer on the permittee any permanent rights to generally divert, withdraw or store water. Not only are permits limited as to the time, purpose, amount, place, and rate at which water may be used,[174] but the permit is specifically subject to modification or cancellation by the Water Commissioner on several grounds including violation of the permit terms or the law, protection of the public health, safety or interest, and prevention of substantial injury to persons or property. Cancellation or modification for these reasons requires notice to the applicant and a hearing. The Commissioner may also suspend operations of a permit on the same grounds without a hearing in situations of emergency.[175]

The emergency power is very common in regulation of this type, but the power in the Commissioner to modify or cancel a permit already limited in duration on grounds relating to either public or private injury reduces the status of the permitted user to little more than a mere tenant at will of his use. Of course, the Commissioner must have sufficient grounds to cancel or modify a permit, but the vague standards provided in the act permit considerable discretion. In practice the Commissioner has exercised his power to cancel only in cases where the permittee has failed to file use reports, thus breaching the terms of his permit. Nevertheless, a full statement of the power to modify and cancel is specifically included in all permits issued.[176]

It might be thought that the purpose of including in the statute such a broad power to adjust existing permits related to the anticipated development of some systems of priorities based on factors other than time of application. For example, if priorities were to be established among permits on the basis of the beneficialness of the uses involved, it might be necessary to change the terms of an existing lower use permit when a competing higher use permit is granted. Adoption of such a priority policy by the Commissioner would be in no way inconsistent with the policy of issuing permits to all appli-

174. *See* definition of "Permit," Iowa Code § 455A.1 (1962).

175. Iowa Code §§ 455A.28 (2), (3) (1962).

176. A provision like the following is included in every permit issued by the Council:

> Permittee is advised that pursuant to Section 455A.28, Iowa Code 1962, the authority to withdraw water provided by this permit may be modified, cancelled or suspended if the permitted withdrawals result in substantial injury to any private or public interests.

cants noted earlier. In some ways the combination of the two policies would comprise a very serviceable regulatory plan—issue permits to all applicants who can put water to beneficial use, but in time of shortage assign the permittees priorities based on the relative beneficialness of their uses.

Adoption of such an approach has never been seriously considered by the Commissioner or Council. Rather, the Commissioner has publicly stated the consistent interpretation of the act thusly: "The wide range of conditions in Iowa made it inadvisable to set up any other [than domestic use] priorities."[177] Considering the Commissioner's unwillingness to delve into questions concerning the relative beneficialness of a use at the hearing on application for a permit, the reluctance to attach to the issued permits priorities based on relative standing of the use is not surprising.

The Commissioner supports his position against the establishment of priorities for stream use with the argument that any priorities established would be relatively worthless under typical Iowa conditions. The notion is that when stream flow is dropping, the period of time between the point where all consumptive users can withdraw and the point the protected flow is reached is sufficiently short that a priorities system would be of little practical value in most situations. This view, based on the typical recession curve of most Iowa streams is not without merit, however, it is perhaps something of an overstatement. After the usual high flows of the early spring pass, flow in Iowa streams typically diminishes at a decreasing rate, and may stabilize for a period at almost any point on the recession curve. This point of stabilization is just as likely to occur somewhere between the protected flow and the point where demands of all users can be satisfied as at any other point on the scale.[178]

To illustrate, the United States Geological Survey has maintained records on the Middle river near Indianola for over twenty-five years. During that period the maximum recorded flow was 34,000 cfs in 1947 and the minimum was 1.29 cfs in 1955. The protected flow at this point as set by the Council is 14.6 cfs. If we assume that there are 5.4 cfs of permitted consumptive uses in the same reach divided between two users who have not entered into a sharing

177. Bullard, The New Water Rights Law in Iowa, Paper presented at the 98th Meeting, Missouri Basin Inter-Agency Committee at Des Moines, Iowa, January 23, 1958, p. 5.

178. Interview with Sulo Wiitala, U.S. Geological Survey, in Iowa City, Iowa, May 13, 1966.

agreement, the summation flow would be 20 cfs. If the Commissioner's view is sound, this band between 20 cfs and 14.6 cfs should be passed through fairly quickly as the stream drops. A check of the flow records reveals that on six occasions during the last twenty-five years the flow has stabilized for some period within this band. In 1941 for example, the flow varied between 14 and 18 cfs for twenty-seven days out of a thirty-one day period.[179]

The reason that these relative infrequent occurrences cannot be passed over too lightly is that they occasionally coincided with the times of year an irrigator would most likely need water for supplemental irrigation. An established priority giving a user an assured right to use water could be extremely valuable under such circumstances. Such potential value to a particular user by no means justifies the creation of priorities, but it does suggest that the Commissioner may eventually have to come up with a more satisfactory explanation for the policy against priorities.

Passing for the moment other questions relating to the soundness of the Commissioner's position on priorities, it is interesting to speculate on whether either the Commissioner of the Council have the power under the act to assign priorities to uses, assuming they desired to do so. Examining the provisions of the act, it is not clear whether any power was granted to assign priorities based on the relative beneficialness of competing uses. The terms of the act are so broad and general as to admit of almost any interpretation. The several sweeping policy declarations cited earlier again deserve note. For example, section 455A.2, labeled "Declaration of policy," declares that the welfare of the people of Iowa requires that the state's water resources "be put to beneficial use to the fullest extent of which they are capable. . . ." The same section states that it is intended that the police power shall be used to "effectuate full utilization" of the water resources of the state. Section 455A.17 directs the Natural Resources Council to establish a comprehensive statewide plan for the development of water resources, providing for "the optimum control, protection, development, allocation and utilization thereof." However, very little statutory machinery is to be found to implement these declarations.

Only three sections of the act make any reference to superior or prior rights among users. None can be said to lend much clarity to the priorities questions.

179. Information obtained from U.S. Geological Survey records located in Iowa City, Iowa.

Section 455A.21 is entitled "Priority of permits." The section first provides that priority in the consideration of applications will be given in the order the applications are received. This opening sentence is followed by several exceptions which, it is suggested, actually establish no priorities at all. The first of these states that "persons who have made diversion or withdrawal for a beneficial use prior to May 16, 1957 (the effective date of the act) will be accorded priority according to the actual date of said diversion or withdrawal." The Commissioner has interpreted this section to mean only that such persons are to be accorded priority in the processing of their applications, not in the use of water once the permits are granted.[180] Since this clause is immediately preceded by the opening sentence providing in general for considering applications on a first-come first-serve basis, the Commissioner's interpretation would seem to be reasonable. If this is the proper interpretation, the clause in question is for practical purposes no longer operative. It served only to give existing users priority in processing during the expected rush of applications when the act first took effect.

The second purported exception contained in section 455A.21 states that "the use of water for ordinary household purposes, for poultry, livestock and domestic animals shall have priority over other uses." The presence of this clause in this particular section of the act would seem to be unexplainable. This use of water is clearly and expressly a nonregulated use as defined by section 455A.1, and nonregulated uses are expressly excepted from the requirement of a permit by section 455A.25(2). Thus, if the clause means that domestic uses are to have rights superior to those of permitted uses, as its position in the section entitled "priority of permits" seems to suggest, then the clause is mere surplusage. Obviously, all nonregulated uses can be said to have a "priority" over those for which permits are required. The clause does have another possible meaning. It could be a codification of the common-law riparian rights rule giving domestic uses a priority over other kinds of riparian uses. Thus, the clause could mean that domestic uses are to be prior to all other nonregulated uses. If this is the intended meaning, it seems rather strange that the clause was included in a section otherwise dealing exclusively with regulated uses.

The final exception in section 455A.21 states that "any person with an existing irrigation system in use prior to May 16, 1957 shall

180. Interview with Clifford Peterson, Deputy Water Commissioner, in Iowa City, Iowa, November 8, 1965.

be issued a permit to continue, unless by the use thereof some other riparian user is damaged." This may have been an attempt to ensure that existing irrigators, many of which may have made substantial investments in irrigation machinery, would be permitted to continue after the act took effect. If this is so, however, the "unless" clause would seem to destroy much of the intended effect. Damage to "some other riparian user" would be likely to result if the irrigator withdraws water during a time of shortage. In any event, the Commissioner has never in fact accorded any special consideration to possible damage to other riparian users when passing on an application for a permit from an existing irrigator.[181] So long as the proposed use is "beneficial" a permit will be granted without regard to the needs of other irrigators who may have received their permits first. All may withdraw so long as the established minimum flow is maintained. If the minimum flow is reached, all must stop withdrawing, whether their use began before or after the effective date of the act.

Another section of the act which mentions priorities is section 455A.20. That section provides that the Commissioner on first hearing, or the Council on appeal, shall grant a permit if after due investigation it is found that the intended use "will not be detrimental to the public interests, including drainage and levee districts, or to the interests of property owners with *prior or superior rights* who might be affected. . . ." Just who might be a property owner "with prior or superior rights" is difficult to determine. It is possible that this phrase applies only to downstream nonregulated users. For example, if it were found that a proposed use would drastically reduce the flow of the watercourse, this would be detrimental both to the public and to nonregulated users below the point of withdrawal. Since these are the interests the established minimum flow concept was designed to protect, the permit would not be granted. It is also possible that "prior or superior rights" refers to the exceptions in section 455A.21, discussed above. If these exceptions were attempts by the legislature to establish priorities, they failed rather miserably.

The one other mention of the term "priority" is found in section 455A.29, a garbled provision concerning termination of a permit. Here it is provided that if a permittee makes application to have his permit extended, the Council may grant the extension "without loss of priority." Little argument can be made from this obscure reference.

181. *See* O'Connell, Iowa's New Water Statute 607, n. 369.

Any attempt to discover just what the legislature had in mind concerning priorities is soon reduced to somewhat frustrating speculation. The act is extremely vague and often internally inconsistent on the subject. This is probably the natural fate of an attempt to determine the nature of an intent which was never solidly formulated by the legislature. It seems likely that the legislature did not consider consciously the establishment of a comprehensive system of priorities one way or the other. The word "priority" is used in the sections discussed, but probably not in the context of any comprehensive plan. Thus, it is suggested that sections discussed above, despite their use of the magic word, neither promote nor refute the contention that the Commissioner has the power under the statute to assign priorities. However unclear it may be whether the act would permit the commissioner to establish priorities, it is quite clear that nothing in the act requires him to do so.

If the power to create priorities exists, it must do so as a necessary adjunct to other powers and duties of the Commissioner and the Council. It is quite clear that the legislature intended to bring certain specified water uses under state control, to the end that a beneficial use of the state's water resources might be ensured. Since the act does not in all cases define how this end is to be achieved, presumably the details were intended to be left to the Commissioner and the Council. It is also reasonable to suppose that some uses are more beneficial than others. Since the act contemplates the regulation of water, and since the Commissioner is nowhere expressly or impliedly denied the power to choose among competing users, he probably can be said to have the power to do so. Thus, if a point were reached where there was not enough water to satisfy all uses most of the time, it seems reasonable to assert that the Commissioner necessarily has power to choose among them. The point is probably still quite a way off in Iowa.

Although no comprehensive system for establishing priorities among permittees has been developed, certain de facto priorities do exist under the act as administered. The most obvious of these is the priority of nonregulated over regulated uses. Nonregulated uses are at no time prohibited from withdrawing water, even when the watercourse from which they take has fallen below the established minimum flow. To the extent that such uses are consumptive, meaning that they withdraw more water from the watercourse than they return to it, they can deplete the watercourse beyond the point at which

permitted users must stop withdrawing. They, therefore, might be said to have rights superior to those of regulated users.

Certain priorities may also exist among permitted stream users under the present operation of the minimum flow restriction. By administrative interpretation, the minimum flow restriction applies only to uses recognized by the Commissioner as being "consumptive." While the distinction itself makes sense, its equitable operation depends heavily upon the accuracy with which a particular use can be described as consumptive or nonconsumptive. At present the irrigator is the only user who is classed as consumptive, and, therefore, the only user to whom the minimum flow restriction is meaningful. A sort of negative priority has thus come into being; the irrigator is inferior to all other users, both regulated and nonregulated. This is true even though large uses of water classified as nonconsumptive may actually be partly consumptive.

It is not presently contemplated that such uses as cities or industries, which may at times be partly consumptive, will be required to modify their withdrawal to maintain the established minimum flow. Thus, at least in theory, there is an operative priority of municipal and industrial consumptive use over use for irrigation. It is not suggested that such a priority would be unwise in the event of shortage, or even that its effect is to deprive irrigators of needed water at the present time.[182] However, this theoretical priority raises questions that will have to be given consideration in the future, when increasing demand for the state's water resources may be expected to exceed the available supply at certain times of the year.

Another type of de facto discrimination created by the enforcement of the protected flow restriction is the superior position of the consumptive users withdrawing from sources other than streams over similar users who must look to streams for their water supply. In times of water shortage the stream user must curtail his withdrawals to preserve the minimum flow, whereas the user whose

182. The lack of serious competition for water during the last decade is shown by the relative stability in the figures on total acreage of land for which an irrigation permit is in effect. The following table should not be interpreted as showing a stagnancy in irrigation interest. Although the total land acre subject to irrigation is about the same since 1960, it is by no means the same land constantly under the same permit. Many earlier permits have expired and not been renewed and a number of new applications are received every year. See notes 184, 225 *infra*.

TABLE 6

Acreage Under Irrigation Permits

	1957	1958	1959	1960	1961	1962	1963	1964	1965
Acreage	0	10,215	49,511	75,143	73,000	71,766	73,231	77,656	78,805

source is a well or reservoir may continue unregulated. The strong policy expressed in the statute to safeguard stream flow would seem to make this result inevitable. However, the close analogy in such a case to the result reached under riparian principles can hardly pass unnoticed. Perhaps the common law rules were not so irrational after all. On the other hand, in certain circumstances, reaching the identical result under both systems does not guarantee rationality. For example, suppose two irrigators are located near one another on the same watercourse. One takes his water directly from the watercourse, and the other depends on wells he has sunk which draw from the alluvial flow of the stream. In the event that the established minimum flow is reached, is the well irrigator also subject to its restrictions? If not, and this seems the likely result, a completely unreasonable priority has been established.[183]

Other priorities may be inherent in the definition of "consumptive." It is possible that some beneficial qualities of water can be consumed even though the quantity of water is not affected. For example, assume that two or more industrial users are located on the same watercourse. Each of them uses water only for cooling, returning all water withdrawn to the watercourse as soon as it has served its purpose. Each time the water is used, however, it is returned to the watercourse at a significantly higher temperature than when it was withdrawn. A sufficiently large user may raise significantly the temperature of the watercourse for some distance below his point of discharge, making the water less useful for cooling the machinery of the downstream users. If the increase in temperature is not recognized as consumptive, it would seem a priority of sorts would exist favoring the upstream user.

The above discussion is not intended to be an exhaustive analysis of all priority problems which have or may arise in the administration of the Iowa act. It is intended merely to point out the kinds of considerations which will have to be made, if increasing demands for our water resources ever reach the point at which some allocation among uses will have to be made to protect the public interest.

183. How the Council would resolve this type of situation is by no means clear. The statute makes the minimum protected flow applicable to stream permits only, yet both surface and groundwater are regulated. The Commissioner has pointed out the fact that surface and ground water supplies are interconnected. *See* Bullard, *supra* note 150, at 3, where after making the above point, he says, "All decisions on applications for regulated uses of water take into account the effect of the requested use on the entire water resource." Presumably, this same policy might be applied to decision regarding the modification or cancellation of existing permits.