

9.11.07 clean version –RULES GOVERNING INCREASED IRRIGATION
EFFICIENCY OF SURFACE WATER IRRIGATION SYSTEMS IN WATER
DIVISION 2

Draft Proposed ORDER OF THE STATE ENGINEER

BY THIS ORDER the State Engineer adopts the following rules governing the increased irrigation efficiency of surface water irrigation systems in Water Division 2.

Rule 1. Title

The title of these rules is “Rules Governing Increased Irrigation Efficiency of Surface Water Irrigation Systems in Water Division 2.” The short title for these rules is “Irrigation Efficiency Rules for Division 2,” and they may be referred to herein collectively as the “rules” or individually as a “rule”.

Rule 2. Authority

These rules are promulgated pursuant to the authority granted the State Engineer in § 37-80-102(a), § 37-80-104 and § 37-92-501, C.R.S. (2006), and are necessary for the enforcement of the terms of the Arkansas River Compact, § 37-69-101, *et seq.*, C.R.S. (2006)(Compact).

Rule 3. Purpose

- A. The purpose of these rules is to ensure that improvements to surface water irrigation systems within the scope of these rules, including but not limited to those improvements which are intended to increase irrigation efficiency, do not materially deplete the waters of the Arkansas River in violation of Article IV(D) of the Compact.
- B. Prior to October 1, 1999, Colorado conducted a comprehensive update of irrigated acreage in the lower Arkansas River Basin which included information on irrigation systems and irrigation methods and delineated how surface and ground water were used under the major ditches between Pueblo and the stateline. The results of the update report were incorporated in the Arkansas River Compact compliance modeling and established a baseline for existing methods of irrigation for the majority of the irrigated acreage in the basin. These rules establish the requirement that water users must obtain approval from the Division Engineer for any improvements made after that update report was completed (i.e., made on or after October 1, 1999) to surface water agricultural irrigation systems within the scope of these rules. These rules also establish the procedures and criteria for the Division Engineer to evaluate such improvements to determine if they will materially deplete the waters of the Arkansas River in violation of Article IV(D) of the Compact.

- C. These rules have as their objective the optimum use of waters of the Arkansas River in a manner consistent with preservation of the priority system of water rights and with Colorado's obligations under the Compact.

Rule 4. Scope and Exceptions

- A. These rules apply throughout the drainage basin of the Arkansas River Basin in Colorado except: (1) within the boundaries of a designated ground water basin formed under § 37-90-101 et seq.; and (2) in the Horse Creek Basin above the Box Springs Ditch headgate.
- B. These rules apply to any person or entity whatsoever using, claiming or in any manner asserting any right to the use of surface waters of the Arkansas River under the authority of Colorado in whole or in part for agricultural irrigation or the replacement of depletions caused by ground water diversions.
- C. These rules do not apply to diversions of ground water or to structures, facilities, equipment, or works used exclusively for the diversion, conveyance, or application of ground water.
- D. These rules do not apply to surface water irrigation systems that serve less than one acre.

Rule 5. Definitions

- A. As used in these rules:
 - 1. "Agricultural irrigation" means the application of water in excess of natural precipitation to grow crops for production of food, forage or other goods in a commercial enterprise.
 - 2. "Division Engineer" means the Division Engineer for Water Division 2.
 - 3. "H-I Model" means the Hydrologic-Institutional Model that has been used to determine Compact compliance in *Kansas v. Colorado*, No. 105, Original, United States Supreme Court, and that will be used to determine Compact compliance in the future as described in Appendix C to the Decree in *Kansas v. Colorado*, which includes the model documentation. The term "H-I Model" also includes any future updates and revisions to said model under the terms of said Decree.
 - 4. "Historical Seepage Losses or Return Flows" means the seepage losses and return flows that would occur from use of a surface water irrigation system in the absence of the improvement made on or after October 1, 1999 to the surface water irrigation system.

5. "Irrigation efficiency" means the percentage of diverted or applied water that is consumed through use of a surface water irrigation system.
 6. "Increased irrigation efficiency" or "increase in irrigation efficiency" means a larger percentage of diverted or applied water is or will be consumed with an improvement to a surface water irrigation system than without the improvement.
 7. "Improvement(s) to a surface water irrigation system" means a man-made change to a surface water irrigation system, or to the land irrigated by a surface water system, that could result in an increase in irrigation efficiency, including, without limitation, lining of canals, ditches, or laterals; application of chemicals to reduce canal, ditch, or lateral losses; use of water conveyance or distribution pipelines to replace ditches and laterals; installation of sprinkler systems, drip systems or other irrigation technologies to replace flood and furrow irrigation methods; new or expanded use of head stabilization ponds or tailwater recovery pits; and application of soil-amending products that increase soil moisture-holding capacity. Crop selection, crop rotation, irrigation scheduling, cultivation, and general maintenance activities such as the control or eradication of vegetation, dredging of canals, ditches, and laterals, and sluicing operations to remove sediment from canals, and similar practices are not considered improvements to surface water irrigation systems under these rules.
 8. "Subject water right(s)" means any and all water rights being put to use with the surface water irrigation system to which the improvement is made or proposed.
 9. "Surface water irrigation system(s)" means any and all structures, facilities, equipment, or works used to distribute, control, apply, or return surface water for agricultural irrigation, including, but not limited to, dams, diversion works, canals, ditches, laterals, pipelines, flumes, reservoirs, structures, equipment, siphon tubes, pipes, sprinkler systems, head stabilization reservoirs, and tailwater recovery systems.
- B. Any term used in these rules that is defined in Articles 69, 80 and 92 of Title 37, C.R.S. shall have the same meaning given therein unless such interpretation would be inconsistent with the purposes of these rules.

Rule 6. Principles and Findings

- A. Article IV-D of the Compact allowed for the "future beneficial development of . . . works for the purposes of water utilization and control, as well as the improved or prolonged functioning of existing works," but only on the condition that "the waters of the Arkansas River, as defined in Article III, shall not be materially depleted in usable quantity or availability for use to the water users in

Colorado and Kansas under this Compact by such future development or construction.” The State Engineer is responsible for discharging the obligations of the state of Colorado imposed by the Compact and finds that the phrase “improved or prolonged functioning of existing works” in Article IV-D encompasses improvements to surface water irrigation systems within the scope of these rules. The State Engineer has been guided by the terms of the Compact and the decisions of the United States Supreme Court and its Special Master interpreting the Compact. *See, e.g., Kansas v. Colorado* (No. 105 Original), 514 U.S. 673 (1995); 533 U.S. 1 (2001); 543 U.S. 86 (2004).

- B. The State Engineer finds that improvements to surface water irrigation systems within the scope of these rules may result in an increase in irrigation efficiency that would reduce the amount of historical seepage losses or return flows to the Arkansas River that would have occurred without the improvement, and thus have the potential to materially deplete the waters of the Arkansas River in violation of Article IV(D) of the Compact.
- C. The State Engineer finds that the Compact is deficient in establishing standards for administration within Colorado to provide for meeting its terms with respect to improvements to surface water irrigation systems; that these rules are necessary to enable the State to meet its Compact commitments; and that these rules are legal and equitable “to regulate distribution among the appropriators within Colorado obligated to curtail diversions to meet compact commitments, so as to restore lawful use conditions as they were before the effective date of the compact insofar as possible.” *See C.R.S. § 37-80-104* (2006).
- D. In adopting these rules, the State Engineer has been guided by the recognition that the Arkansas River Basin is a separate entity (see § 37-92-501(2)(a)), that waters of the Arkansas River are apportioned by the Compact, and that the state of Colorado and any person or entity of any nature whatsoever using, claiming or in any manner asserting any right to the use of the waters of the Arkansas River under the authority of the state of Colorado are subject to the terms of the Compact.
- E. In order to consider the relative priorities and quantities of all water rights in the Arkansas River Basin subject to these rules and the anticipated times of year when demands will be made by the owners of such rights for waters to supply the same (see C.R.S. § 37-92-501(2)(c)); to consider the particular qualities and conditions of the groundwater and surface water systems in the Arkansas River Basin; and to determine the effects of improvements to surface water irrigation systems on Stateline flows, a hydrologic computer model is a reasonable and accepted tool. Currently, the H-I Model has been accepted by the United States Supreme Court and agreed to by the States of Kansas and Colorado as the method to be used for determining Compact compliance with respect to groundwater pumping in Colorado and the replacement of depletions to usable Stateline flow caused by groundwater pumping in excess of Colorado’s pre-Compact pumping

allowance. The State Engineer finds that the H-I Model is a reasonable tool for determining that these rules are necessary.

Rule 7. Requirements for Division Engineer Approval of Improvements to Surface Water Irrigation Systems

- A. No improvement made on or after October 1, 1999 to a surface water irrigation system within the scope of these rules shall be allowed unless and until it receives written approval from the Division Engineer. For any improvements made on or after October 1, 1999 but prior to the effective date of these rules, applications for approval are due by January 1 following the year during which these rules become effective, or 90 calendar days after these rules become effective, whichever is latest. For all others, the application must be filed and approved before the improvement is made.
- B. In the event written approval has not been given by the Division Engineer in accordance with Rule 7.A, the State or Division Engineer shall order the total or partial curtailment under § 37-92-502, C.R.S. (2006) of the subject water right(s), to reduce diversions that serve the surface water irrigation system in question, or take other appropriate action authorized by law to prevent a Compact violation.
- C. The Division Engineer shall approve and allow an improvement to a surface water irrigation system if the applicant has demonstrated that the improvement will not change the amount, location, or timing of historical seepage losses or return flows from water diverted, conveyed, stored, applied, or returned by the surface water system or terms and conditions can be imposed that will maintain historical seepage losses and return flows in accordance with Rule 7.F.
- D. All applications for approval of improvements to surface water irrigation systems shall be submitted in writing to the Division Engineer by or with the written approval of the owner of the surface water irrigation system receiving the improvement, and shall include a complete engineering report by a licensed professional engineer allowing full evaluation of the amount, location, and timing of seepage losses and/or return flows from water diverted, conveyed, stored, applied, or returned by that surface water irrigation system with and without the improvement.
- E. To evaluate the effects of an improvement to a surface water irrigation system on the waters of the Arkansas River and the potential that the improvement may deplete the waters of the Arkansas River in violation of Article IV(D) of the Compact, the Division Engineer may rely upon the H-I Model or other appropriate engineering and consumptive use analyses.
- F. If the engineering report submitted in support of an application for approval of an improvement to a surface water irrigation system concludes that the improvement will change the amount, location, or timing of historical seepage losses or return

flows from water diverted, conveyed, stored, applied, or returned by that surface water irrigation system but proposes or describes methods of maintaining the amount, location, and timing of historical seepage losses or return flows, which are consistent with the decree for the subject water right and with Colorado law, the application may be approved by the Division Engineer. However, if the applicant proposes to use a source or sources of water other than the subject water right, or to change the water right, the Division Engineer will deny the application and direct the applicant to file an application for approval of a plan for augmentation or change of water right in accordance with section 37-92-302, C.R.S. If this occurs, the applicant must either cease use of the improvement to the surface water irrigation system, or reduce diversions in an amount sufficient to maintain historical seepage losses or return flows, until the water court has entered a decree approving a plan for augmentation or change of water right; provided that nothing herein shall preclude the applicant from requesting approval of a substitute water supply plan pursuant to C.R.S. 37-92-308.

- G. Within ninety (90) calendar days after receipt of a complete application (including receipt of any follow-up information requested by the Division Engineer's Office), the Division Engineer will provide the applicant with a written decision that may be in the form of approval, denial, or approval with terms and conditions. The terms and conditions to prevent an improvement to a surface water irrigation system from violating Article IV (D) of the Compact may include a limitation on the use of the subject water right(s), including a limitation on the time, place, or method of use of the surface water irrigation system, or such other terms and conditions as may be necessary to maintain historical seepage losses or return flows, including removal of land from irrigation.
- H. In making the determinations necessary to approve or deny an application, or for developing terms and conditions, the Division Engineer shall not be required to hold or conduct a hearing, but may hold or conduct a hearing if the Division Engineer finds it necessary. Any such hearing shall be conducted consistent with the procedures for adjudicatory hearings in Section 1.1.4.C through J of the Division of Water Resources Procedural Regulations, 2 CCR-402-5, except that where the State Engineer is referred to in those Procedural Regulations, the Division Engineer shall be substituted for the State Engineer for the purpose of conducting hearings under these rules.

Rule 8. Effect of Rules

Improvements to surface water irrigation systems subject to these rules are not exempt from the requirements of any other lawful rules or statutes governing the use of surface water in Water Division 2, whether now existing or hereafter adopted.

Rule 9. Variance

When the strict application of any provisions of these rules would cause unusual hardship, the Division Engineer may grant a variance. Any request for a variance shall be made in writing and shall state the basis for the requested variance. If the State Engineer finds that the request is justifiable, the State Engineer may issue a written order granting the variance and setting forth the terms and conditions on which the variance is granted.

Rule 10. Severability

If any rule or part thereof is found to be invalid by a court of law, the remaining rules shall remain in full force and effect, including any part thereof not found to be invalid.

Rule 11. Effective Date

These rules shall take effect sixty calendar days after publication in accordance with section 37-92-501(2)(g), C.R.S. (2006), and shall thereafter remain in effect until amended as provided by law. In the event that protests are filed with respect to these rules in the time frame set by section 37-92-501(3), C.R.S., the effective date of such rules shall be stayed until such protests are judicially resolved pursuant to the procedures set forth in section 37-92-304, C.R.S.

IT IS FURTHER ORDERED that any person who wishes to protest these proposed rules may do so by filing a protest in writing with the Division 2 Water Clerk in Pueblo, Colorado, in the same manner as for the protest of a ruling of the referee. Any such protest must be filed by the end of the month following the month in which these rules are published.

Dated this 31st day of Month, 2007.

Colorado State Engineer