

EVALUATION OF IRRIGATION WATER CONSERVATION PLANS

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INTRODUCTION

In order to achieve greater efficiency in the use of water and a reduction in the overall demand of this limited resource, certain entities involved in irrigation have been required by law to prepare and implement water conservation plans. Within the boundaries of the Southwest Kansas Groundwater Management District No. 3, some sixty (60) irrigation water conservation plans are presently in existence. These plans, as part of water right applications, have been required from farmers, school districts, cemeteries, and golf courses. They describe how irrigation systems will apply water in an efficient and beneficial manner.

Once the initial water conservation plan has been designed, it is the responsibility of the water right owner not only to implement the plan, but to keep it current as well. For instance, any change in the operational procedure of the irrigation system could be reason for immediate revision. In addition, the agencies requiring the development of these plans should be responsible for determining their usefulness. Monitoring and evaluation of these irrigation plans is being done by the Division of Water Resources through a contractual agreement with the Southwest Kansas Groundwater Management District No. 3 so that the effectiveness of these irrigation water conservation plans can be determined.

FORMAT AND METHOD OF EVALUATION

Evaluation of an irrigation water conservation plan begins with its random selection from a list provided to the District by the Division of Water Resources. Copies of plans and evaluation forms are also provided in order to achieve consistency in the quality and quantity of information sought. The major categories of the evaluation form are Administrative Information; General Information Of Irrigation System; Well Information; Flow Meter Information; Additional Requirements; Sketch Of Actual Place Of Use, Location Of Diversion Works, And Distribution System; Test Of Diversion Rate; Tabulation Of Water Use Determined At The Time Of This Report; Structural Measures; Crop Residue; Irrigation Scheduling; Soil Moisture; Remarks; and Signatures. The data compiled from the completion of these categories provides sufficient information allowing for an effective evaluation of the plans.

Once an irrigation water plan is selected for evaluation and prior to field review, research of the water right file is completed. Administrative information that needs updating is accomplished at this time. Field visits involving interviews with the appropriate persons (owner, tenant, etc.) as well as an actual "on site" monitoring of the plan and its implementation are conducted. The complete evaluation is discussed with those persons involved with the daily operations of the plan and each major category is thoroughly and independently evaluated by

District personnel. All data accumulated during the review(s) is recorded on the evaluation form and finalized.

CONCLUSIONS

File Reviews:

Approximately fifty (50) irrigation water conservation plans have been reviewed by District personnel. As a result of those reviews, it has been determined that there is a distinct variance in the amount of detail written into these documents. Some plans are little more than a sketch showing where irrigation water is to be applied. Others are fairly detailed containing worksheets and other pertinent information depicting the total operation of the irrigation system. This initial investigation most importantly evaluates the accuracy of the administrative information as well as the overall completeness of the document. Due to sudden changes such as ownership or operational procedures, errors are sometimes discovered and corrected during this examination. However, the details written are generally found to be accurate.

Field Reviews:

Subsequent to the file reviews, personnel from the District conduct actual field investigations. In order to accomplish a thorough review, a minimum of two (2) visits are usually necessary. The intent is to examine the irrigation system in different operational modes (off and on) while creating the least amount of disturbance to the system and operator. These visits allow the District to determine if practices outlined in the irrigation water conservation plans are implemented in the field. After analysis of only a small number of field reviews, it has been found that these practices are usually applied in some degree, but not always to the full extent as described in the plan. It was also found that the quality of the written plan seems to determine its worthiness to the water user. In other words, the irrigation plan which may be labeled as "little more than a sketch" is most likely to be put aside and never looked at again by the operator. Also, just because an operator obtains a very detailed plan, it does not mean that that document will receive any more attention. A detailed plan may become somewhat obsolete soon after implementation because the operational procedures of the irrigation system has changed. Constant reviewing and updating of the plan could become bothersome to the operator making it easy to set aside and forget. Therefore, it is felt by the District that the operator's assumed value of their water conservation plan plays an important role in the extent to which it is utilized. To date, all of the operators interviewed by the District are well aware of their water conservation plans; however, there is just an obvious difference as to the importance these water users give to their plans.

It is obvious, that a plan designed with great detail lends itself to greater discrepancy than a more elementary plan. However, the District feels that a detailed approach to designing these plans with constant updating and proper evaluation will provide the operator with a sound management tool allowing for the efficient application of irrigation water.