Southwest Kansas

Groundwater Management

District No. 3

REVISED MANAGEMENT PROGRAM

APPROVED

This 2nd day of August 1991

David L. Pope, P.E.
Chief Engineer
Division of Water Resources
Kansas State Board of Agriculture

REVISED MANAGEMENT PROGRAM

RULES AND REGULATIONS

AND

POLICIES AND STANDARDS

SOUTHWEST KANSAS GROUNDWATER MANAGEMENT DISTRICT NO. 3

STAFF

Manager.....Gary Baker
District Hydrologist.....Diane Shade
Consulting Hydrologist.....Edward D. Jenkins
Water Quality Technician.....Georgia Shrauner
Water Conservationist.....Kent Shaw
Administrative Assistant.....Rhonda Anstaett
Environmental Technician.....Kevin Shrader
Attorney.....Thomas Burgardt

OFFICERS

President.....Dale Stevenson
Vice-President.....Thomas Bogner
Secretary.....Marvin Odgers
Treasurer.....Mike Friesen

PURPOSES OF THE DISTRICT

- To organize locally and direct the efforts of the entire District toward the goal of proper management and conservation of groundwater resources in the District.

- To establish a framework by which local water users can help determine their own destiny with respect to the use of groundwater in the District.

- To assist District members in optimizing social and economic benefits accruing from the development, beneficial use and long-term management of groundwater in the District.

- To support research and education concerning proper water use and management.

- To work with federal, state and local units of government to accomplish the objectives of the District and of the Groundwater Management Act and amendments thereto.

II. INTRODUCTION

The Southwest Kansas Groundwater Management District No. 3 was organized because of the need to manage and conserve the groundwater supplies of the District. The District establishes the rights of the local landowners and water users to determine their destiny with respect to the use of groundwater, within the basic laws and policies of the State of Kansas.

Area leaders recognized the existing and potential problems related to water supply and, especially, groundwater depletion within the area. A series of information meetings were sponsored by the Southwest Kansas Irrigation Association in the fall of 1973 to determine the will of the people relative to the formation of a Groundwater Management District. As a result of these meetings, a steering committee was formed to carry out the organization of the District according to the Kansas Groundwater Management District Act. On December 4, 1974, the steering committee filed a declaration of intent and a map of the proposed District with the Chief Engineer of the Kansas Division of Water Resources.

After consulting with the steering committee, conducting appropriate geological studies and receiving input from people in the fringe areas of the District, the Chief Engineer, on August 25, 1975, certified the description of the lands within the proposed District.

A petition outlining the purposes of the District and other required information was circulated by the steering committee and submitted for approval to the Secretary of State. After receiving approval of the petition on October 13, 1975, an election was called for February 24, 1976 to allow the eligible voters of the District to decide whether the District should be organized. Results of the election were 1,155 votes in favor and 230 opposed, representing an 83% majority in favor of formation. A certificate of incorporation was issued by the Secretary of State on March 23, 1976, and was subsequently filed in the Register of Deeds offices' of each county within the District.

The organizational meeting to elect the initial Board of Directors of the District was held in Garden City, Kansas on April 6, 1976. The second annual meeting was held March 23, 1977. Since that meeting, the Board has formally adopted the fourth Wednesday of February as the date for the annual meeting.

The following is a list of Officers and Directors for 1991-92.

Name	Position	County	Term Expires
Dale Stevenson	President	Grant	1993
Tom Bogner	Vice-President	Ford	1992
Marvin Odgers	Secretary	Seward	1993
Mike Friesen	Treasurer	Finney	1994
Russell Schartz	Director	Gray	1992
George Fox	Director	Hamilton	1993
Martie Floyd	Director	Stanton	1992
Donald Neff	Director	Kearny	1992
Merle Krause	Director	Meade	1994
Larry Kepley	Director	At-Large	1994
Vincent Youngren	Director	Stevens	1993
Tom Milburn	Director	Morton	1994
Kyle Nelson	Director	At-Large	1994
Wayne West	Director	At-Large	1993

III. DESCRIPTION OF THE DISTRICT

The Southwest Kansas Groundwater Management District No. 3 includes all of Morton, Stevens, Seward, Stanton, Grant, Haskell, Gray and Ford Counties and parts of Meade, Finney, Kearny and Hamilton Counties in Southwestern Kansas. Approximately 5,722,000 acres of total land is included in the District. The District is a part of the Great Plains region. It is primarily an agricultural area with relatively low population density. Elevation ranges from over 3,500 feet in the western areas of the District to less than 2,300 feet in the eastern portions.

1. Climate

The average annual precipitation ranges from fifteen (15) inches in the west to about twenty (20) inches in the eastern part of the District. Approximately 75% of the precipitation occurs during the growing season from April to September. Rainfall is highly variable and inconsistent within the District. Showers account for most of the annual rainfall, with heavy rains occurring occasionally.

Although daily and annual temperatures vary greatly, the growing season is highly suitable to many crops. Frequent cloudless, or nearly cloudless skies and low relative humidity are typical. The days are generally warm, but the nights are cool, even in the hottest portion of summer.

Surface winds are moderate to occasionally strong in all seasons. Soil erosion from wind during extended dry periods requires special soil management practices.

2. Soils

A variety of soils exist within the District. These primarily consist of the broad categories outlined below:

A. Richfield-Ulysses-Colby Association - Deep, nearly level to sloping loamy soils of the tablelands which are primarily in the north, southwest and central areas of the District.

B. Dalhart-Manter Association - Deep, nearly level to duny sandy soils which are primarily located south of the Cimarron River.

C. Tivoli-Vona Association - Duny soils of the sandhills located primarily south of the Arkansas River throughout the District.

D. Las - Las Animas Association - Sandy and sandy loam soils of the bottomlands and low terraces along the Arkansas River.

E. Harney-Spearville-Uly Association - Deep, nearly level to sloping loamy and clay soils located in the southeast, east and northeastern portions of the District.

F. Penden-Canlon Association - Deep to shallow gently sloping hilly loamy soils found in some northeastern portions of the District.

The majority of the soils in the District are Class I, II, and III soils. Most soils have the potential for irrigation with modern equipment and today's advanced techniques.

3. Drainage Pattern

The entire District is included in the Kansas portion of the Arkansas River Basin. The District can be further subdivided into the upper Arkansas unit and the Cimarron unit.

Upper Arkansas Unit: Counties within the District which are totally, or partially included are Finney, Hamilton, Kearny, Haskell, Gray and Ford. Portions of Buckner Creek, Saw Log Creek and Mulberry Creek are included in the District's upper Arkansas unit. The James Draw is a noncontributing stream which ends in a depression.

Cimarron Unit: Counties which are totally or partially included in the Cimarron Unit are Morton, Stevens, Seward, Meade, Stanton, Grant, Hamilton, Kearny, Haskell, Gray and Ford. Principal tributaries of the Cimarron River in the District are the North Fork Cimarron, Crooked Creek and, on occasions of high runoff, Bear Creek.

Although much of the land in the broad plains and level areas drains into local depressions, there are organized watersheds in several areas of the District. Figure I shows the boundaries of the District and the general drainage pattern.

4. Water Resources and Use

The major surface water source used in the area is the flow from the Arkansas River. Several ditch companies divert water from the river for irrigation in Hamilton, Kearny and Finney Counties when it is available.

Surface runoff throughout the area is low and difficult to economically capture. Due to the nature of the rainfall, the soil characteristics and land topography, the average annual surface runoff ranges from only .1 inches in the west to .5 inches in the east. Some opportunity exists for small structures to capture water for recharge and other purposes. A large percentage of the rainfall received returns to the atmosphere by evaporation or transpiration by crops and other growing plants.

Water for municipal, industrial and irrigation purposes comes primarily from groundwater. Most of the area overlies water-bearing formations ranging in thickness from less than 50' to over 600'. The major water-bearing formation is the Ogallala aquifer which underlies most of the area. Some wells in the District obtain water from bedrock-sandstone aquifers which include the Dakota, Cheyenne, and the Upper Jurassic formations, or from alluvial deposits along the streams and valleys.

Throughout the District, irrigation is widely practiced to stabilize and increase crop production. Although some irrigation has existed in the area for many years, a majority of the groundwater development has occurred since 1950. In 1975, approximately 1,600,000 acres were irrigated in the District from about 7,800 large-capacity wells. These range in capacity from 100 to over 3,000 gallons per minute. In 1988, approximately 1,853,737 acres were irrigated in the District from about 10,255 large-capacity wells. Approximately 3,817,000 acre feet have been appropriated for irrigation purposes. Irrigation accounts for about 98% of the water use in the District.

At the request of the District, the Chief Engineer, on September 29, 1986, declared an Intensive Groundwater Use Control Area be established along the Arkansas River throughout the District and west of the District to the State line. The control area was established because of declining water levels and over-appropriation of existing water supplies by approximately 50%. The order of the Chief Engineer effectively closed the area to further appropriation, with the exception of domestic wells and new appropriations of less than 25 acre feet. In addition, the Chief Engineer established a task force to study and recommend possible additional control measures.

5. Economics

The present and future economic stability of the District is highly dependent on the availability of water for irrigation, for other agriculture-related businesses and industries, for municipalities and for non-agricultural industries. For example, the production of feed grains and hay crops from irrigated land is essential to supply the intensive cattle-feeding industry, which, in turn, supplies the beef packing plants in the area. The District also produces significant quantities of wheat and soybeans which are exported from the area. Municipalities and non-agricultural industries, such as electric power production and oil and gas production, also depend on the availability of water for stability. All of these endeavors require that water be available at a reasonable cost.

IV. GROUNDWATER SUPPLY PROBLEMS

The increased demand for water within the area has placed a large demand on the available groundwater supplies. The results of these large withdrawals are becoming evident. The water table is declining from 1 to 5 feet per year in most of the area. Annual recharge to the groundwater reservoir is estimated to range from one-fourth inch for non-irrigated land to as much as two inches where soil moisture is maintained by irrigation.

Total declines of the water table since 1940 range from less than 10 feet to over 200 feet (1988 data). These figures may or may not represent critical declines, depending on the amount of water in storage and the saturated thickness available in a given area. An increase in the rate of water table decline has occurred over nearly the entire District during the last 15 to 20 years. The resulting problems, such as decreased well yields, well interference, drainage problems, and others will continue to compound as our water supply declines.

Table 1 provides information relative to water use within the District by county.

Figure 2 shows the decline of the water table of the High Plains aquifer, in feet, for the period of 1940-1988. Figure 3 shows the decline during the same period of time, expressed in percent changes in the saturated thickness.

Closely related to the matter of availability and use of groundwater within the District is the availability of an economical supply of energy. Natural gas is the primary source of energy used for irrigation pumping within the District. Electricity is also an important source of power. Increased energy costs to pump water will result in more efficient irrigation practices and an increased awareness of the value of water.

Environmental issues and water quality are interrelated to the use of water within the area. The quality of the major groundwater supplies is generally very good; however, some localized areas have marginal, or poor quality water.

V. DEFINITIONS

Alluvial Aquifers - An unconsolidated material deposited by streams that will yield sufficient quantities of water to pumping wells and springs. Occurs along valleys of major streams and tributaries.

Aquifer - A geologic water bearing formation that will yield water in sufficient quantity to supply pumping wells and springs. (KDHE definition)

Bedrock - (Consolidated deposits) Any solid undisturbed rock underlying soil, sand, gravel, silt, clay or caliche.

Confined Aquifer - Consolidated rocks that contain water under pressure between relatively impermeable material from which the water will rise in a well above the top of the aquifer, and will yield water in sufficient quantity to supply pumping wells and springs.

Consolidation - In geology, any or all of the process whereby loose, soft, or liquid earth materials become firm and coherent. Cementation is an important factor, as well as the mechanical rearrangement of particles through pressure, crystallization, and loss of water.

Saturated Thickness - The amount (thickness) of aquifer material that is saturated.

Storage Coefficient - The volume of water an aquifer releases from, or takes into storage per unit surface area of the aquifer per unit change in head. In an unconfined water body, the storage coefficient is virtually equal to the specific yield.

Permeability (hydraulic conductivity) - The capacity of a unit cross section of the aquifer to transmit water under pressure.

Unconfined Aquifer - An unconsolidated deposit in which the pressure at the water surface is atmospheric and will yield water in sufficient quantity to supply pumping wells and springs.

Unconsolidated Deposits - Material derived from the disintegration of consolidated rocks, including clay, silt, sand, gravel and caliche, which may or may not contain water.

VI. MANAGEMENT PROGRAMS

The objectives and purposes of the District can best be accomplished by a combination of programs directed towards orderly and economical development, wise use, and responsible management of water. These will include the investigation of quantity and quality of water presently available; efficient use and management of existing water; and the identification of and subsequent development of potential sources of water to increase or maintain the supply.

1. Geological Data Collection and Study

Research, investigation and collection of data on the hydrological characteristics of the groundwater supplies and their use in the District are essential to develop a comprehensive management program. A great deal of information has been accumulated through state and federal research programs. The District will utilize all available information and develop, or assist, with the development of additional information as required. Individual studies are as follows:

A. Water level measurement - utilize data from existing measurements by state and federal agencies and expand those in the District as necessary to allow the monitoring of the water level and preparation of water level maps.

B. Water use study - update existing data and collect additional information relative to the number, location and physical characteristics of wells within the District. Observe the relationship between the amount of water pumped and the water level decline, to determine the apparent storage coefficient (specific yield) for different areas. The data will be used to assess water use within the District and help develop management programs.

C. Interrelationship of surface and groundwater within the District - encourage the study of such relationships by the appropriate state and federal agencies.

D. Artificial recharge - study the results of previous research and investigate the possibility for artificial recharge within the District. This may include studies to assess the feasibility of such projects or the construction and development of recharge locations.

E. Legal aspects of water and its use - study the legal aspects of water use, potential management programs and related matters. Provide input into legal or legislative matters affecting the use of water within the District.

2. **Research and Education on the Conservation and Efficient Use of Water**

Continuing research is needed to develop techniques to optimize yields while minimizing water use. The District will encourage research on efficient and economical use of water. The District will also provide leadership in the demonstration of the use of efficient irrigation systems and practices. Special items include:

A. Develop and use crops requiring less water. Merle, Randy

B. Optimum cropping practices to minimize the use of water. Merle, Randy

C. Reduce water use by irrigation scheduling methods and devices. Bill

D. Develop tillage methods and cropping practices to more efficiently use rainfall and reduce evapotranspiration. Bill

E. Broaden the use of water meters and other measurement devices as a management tool to assist with the proper application of water. The District will assist with the selection and procurement of recommended devices, installation instructions and other matters related to their use. Jeff

F. Study the potential of automated surface irrigation systems and other systems as a means of improving irrigation application efficiency and reducing labor. Bill

The District will compile and present information relative to the efficient use of water for irrigation and other purposes. The members of the District will be informed of programs and activities through news releases, publications, newsletters and meetings.

3. Conservation Planning

K.S.A. 82-711 allows the Chief Engineer, Division of Water Resources to require water conservation plans to be developed and implemented when an applicant applies for a permit to appropriate water. Water conservation plans could also be required when applications are made to change the place of use, or the use made of water. These water conservation plans are based upon guidelines developed and maintained by the Kansas Water Office, as per K.S.A. 74-2608, which also requires the Kansas Water Office, when developing such guidelines, to consider existing guidelines of groundwater management districts and the cost to benefit ratio of any plan.

The Chief Engineer has determined that as of January 1, 1989, an applicant for a permit to appropriate water will be required to adopt and implement water conservation plans and practices. The Chief Engineer has enlisted administrative support from the District within its boundaries. Therefore, in cooperation with the Division of Water Resources, the District shall require conservation plans to be developed and implemented as described in the Act. Water conservation plans are required under the following conditions:

A. All new applications to appropriate water; and

B. Applications that propose a change in place of use when the change increases the place of use by more than 25%; and

C. Applications that propose a change in the use made of water.

House Bill 2037, enacted during the 1991 legislative session amends 82a-711, and further allows Groundwater Districts and the Chief Engineer to require the development of water conservation plans from water users whose use is significantly higher than their peers from the same geographical area with comparable circumstances. Pursuant to this amendment, the District proposes to study and investigate water use reports filed for 1991 and subsequent years that indicate water use in excess of the amount authorized by the water right. After a review of the study, the Board of Directors may recommend to the Chief Engineer that certain water users whose use exceeds the authorized amount be required to develop and implement water conservation plans.

In order to assist water users, the District will seek a memorandum of understanding with each Conservation District and will refer an applicant to the Soil Conservation Service to provide technical assistance in developing the water conservation plan. Plans may also be developed by private contractors or District staff. The applicant will submit the proposed water conservation plan to the Division of Water Resources and it will be considered a part of the application for a recommendation, in the same manner as any new or change application.

4. Water Quality Protection

Groundwater is the principle source of water for approximately 250 public water systems and virtually all rural homes within the District. Groundwater also supplies the 10,492 wells permitted for irrigation, livestock and industrial use across the District. Protecting the quality of our groundwater is vital to ensure the continuation of these activities in Southwest Kansas in the future. Contamination of groundwater by man's activities is recognized as a growing problem.

The District has traditionally been concerned with groundwater depletion. However, protection of the quality of the remaining resource must be included as a priority. Current data on groundwater quality indicate that contamination from man-made sources is present and increasing with the potential to affect our overall groundwater supply. Generally, the groundwater quality in the District is acceptable for present uses but reduction of water quality is occuring. Areas within the District where the low water quality has been found include the Arkansas River alluvial aquifer and areas served by surface water ditch irrigation.

The District acknowledges that most legislative authority and the responsibility for administering water quality protection programs rest with the Kansas Department of Health and Environment and the Kansas Corporation Commission. The District believes it is important to Southwest Kansas to maintain water quality and will cooperate with these State agencies in their efforts. In addition, the District believes it must also be involved in local efforts to maintain water quality. The District, having a vested interest in preserving water quality, shall govern itself as follows:

A. Provide needed information and technical assistance to individuals, groups and local units of government in an effort to educate the public and develop local programs to protect water quality;

B. Cooperate with appropriate State agencies through a memorandum of understanding or other means to protect water quality by sharing data and providing technical assistance;

C. Develop standards and policies in cooperation with appropriate State agencies to enhance enforcement and/or monitor compliance with the rules and regulations of those agencies;

D. Obtain water quality samples representative of the aquifers in the District and maintain the analysis results in a database.

The District water quality program includes monitoring the water quality of the aquifers in the District. Water quality analyses have been obtained from 493 wells in order to obtain background water quality information. The wells sampled from 1988 through 1990 form a grid of wells spaced every six (6) miles. This network will be used to identify changes in water quality in the future.

Reports on water quality are available to the public. In addition, data from other government agencies has been compiled for the past 50 years. This information will be updated as more is collected and will aid in efforts to determine changes in water quality.

5. Water Appropriation Rights

The District Board feels the matter of additional large capacity wells and their location within the District requires special attention to insure the proper management of the available groundwater resource. The planning of this process is essential to protect the public interest and rights of present and future water users within the District. The following policies have been adopted to help accomplish this objective:

A. Application Review

Through an agreement with the Chief Engineer, Division of Water Resources, copies of new applications filed for a permit to appropriate water for beneficial use and applications for changes in point of diversion, place of use, and use made of water, within the District will be submitted for recommendation.

B. Well spacing

1. All new locations described in applications for permit to appropriate water for beneficial use, other than domestic, which propose the diversion or withdrawal of water from the unconsolidated deposits of the Ogallala aquifer or an alluvial aquifer, or both, shall meet the following well spacing requirements from all other non-domestic wells:

a. 6-200 acre feet requested . . . . . 1300 feet
b. 201-300 acre feet requested . . . . . 1600 feet
c. 301-400 acre feet requested . . . . . 1900 feet
d. 401-500 acre feet requested . . . . . 2100 feet
e. 501-up acre feet requested . . . . . 2300 feet

2. All well locations described in applications for permit to appropriate water for beneficial use, other than domestic, which propose the diversion or withdrawal of water from the consolidated aquifers must have a distinct impermeable separation between the overlying unconsolidated aquifers, and shall meet the following well-spacing requirements from all other non-domestic wells.

a. The minimum spacing between wells completed in a consolidated aquifer approved for more than one hundred (100) acre feet per year shall be two (2) miles; for twenty-five (25) through one hundred (100) acre feet per year, one (1) mile; and for less than twenty-five (25) acre feet per year, two thousand three hundred (2,300) feet.

b. The minimum spacing between wells completed in a consolidated aquifer and wells completed in unconsolidated aquifers shall be three hundred (300) feet.

c. The minimum well spacing between wells completed in the consolidated aquifer, and the distance to the area of hydraulic contact (buffer zone) with the unconsolidated aquifers shall both be determined as follows:

ANNUAL YIELD (AF/YEAR)	CONSOLIDATED WELL SPACING (MILES)	BUFFER ZONE * (MILES)
More than 100	2	5
25 - 100	1	2
Less than 25	2,300 FT.	0

* Distance from proposed well to the area of contact or hydraulic connection with the unconsolidated aquifer.

3. The location of a well or wells on an application for approval to change the point of diversion under an existing water right shall be no more than twenty-six hundred, forty (2,640) feet from the authorized point of diversion and shall:

a. Not decrease the distance to other wells or authorized well locations by more than three hundred (300) feet; or

b. Meet the minimum well spacing requirements as adopted by the Board; provided however, that any application for approval to change the point of diversion under an approved application for which the authorized well has not been drilled shall not be approved if the location of the proposed point of diversion decreases the distance from the approved location to any other existing wells to less than the spacing requirement for new applications. Exceptions to this regulation may be granted on an individual basis by recommendation of the board in conjunction with the Chief Engineer. The board may require the applicant to submit information as it deems necessary to make the determination.

C. Aquifer Depletion

1. The approval of all applications for permit to appropriate water for beneficial use from the unconsolidated Ogallala aquifer, except those for domestic use and those requesting five (5), or less, acre feet per calendar year, and the approval of all applications for a change in the point of diversion if the diversion works have not been completed under the original approved application, shall be subject to the following criteria. The proposed appropriations, when added to the vested rights, prior appropriation rights and earlier priority applications, shall not exceed a calculated rate of depletion of more than forty (40) percent in twenty-five (25) years of the saturated thickness underlying the area included within a two (2) mile radius (approximately 8,042 acres) whose center is the location of the

proposed well. For the purpose of analysis, all vested rights, certificates, permits and prior applications will be deemed fully exercised and all limitation clauses listed on permits for appropriation of water and certificates shall be in force. In the case of an application for change in point of diversion, referred to above, all applications with a priority earlier than the priority established by the filing of the application for change, shall be included in the analysis.

The allowable annual appropriation shall be calculated using the following formula:

$$Q = \frac{0.40\ (AMS)}{25} + \frac{AR}{12}$$

WHERE

Q = Allowable annual appropriation, acre-feet per year
A = Area of consideration, acre
M = Average saturated thickness, feet
S = Storage coefficient (specific yield)
R = Average annual recharge, inches per year

The average saturated thickness of the 8,042 acre area shall be determined from maps developed by the United States Geological Survey, the Kansas Geological Survey or other reliable information as may be available.

The average saturated thickness of the two mile radius circle for a well proposed to be located in the West one-half of Townships 33, 34,and 35 South, Range 28 West; the East one-half of Township 33 South, Ranges 29 and 30 West in Meade County, Kansas; and all of Townships 34 and 35 South, Ranges 31 and 32 West; and in the East one-half of Townships 34 and 35 South, Range 33 West in Seward County, Kansas shall be limited to that portion of the saturated thickness containing less than 250 milligrams per liter of chloride.

All applications within this area shall include a driller's log, an electric log and analysis of water samples taken from the bottom of the Ogallala aquifer. Wells drilled in this area shall be constructed so they do not penetrate into that portion of the aquifer containing concentrations of chloride of more than 250 milligrams per liter.

The storage coefficient used shall be 15% (.15). A value of one (1) inch per year shall be used for the purpose of considering recharge and return flow from irrigation.

If part of the radial area is outside the District boundary, it will be excluded from the depletion analysis. Only that portion lying within the boundary of the District shall be a part of the evaluation.

In the event that wells authorized under a vested right, a certified water right, or an approved appropriation, are divided by the circumference of the radial area, the authorized quantity of water will be assigned to each well. If such information is not available, a proportional amount will be assigned to each well.

2. Entire townships shall be closed to further appropriation of water for beneficial use from the unconsolidated aquifer, commonly described as the Ogallala aquifer, except those for domestic use and those requesting less than five acre-feet per calendar year, under the following criteria.

a. A township (nominally 36 square miles) shall be closed to further appropriation of water, if the allowable annual appropriation, computed by the formula above, is exceeded by the total quantity of vested and appropriated rights and approved applications within the township.

b. A township shall be closed to further appropriation of water, if the saturated thickness of the aquifer is 40 feet, or less, within the township.

c. A township shall be closed to further appropriation of water, if the aquifer has been depleted by 20 per cent, or more, since 1940.

The average saturated thickness within a township and historical depletion shall be determined from maps developed by the United States Geological Survey or the Kansas Geological Survey.

Exceptions to this regulation may be granted on an individual basis by recommendation by the Board in conjunction with the approval of the Chief Engineer. The Board may require the applicant to submit information as it deems necessary in order to make the determination.

D. Meters on Wells

Since the formation of the District, the rate of water-level declines has diminished considerably. Much of this is due to government farm programs, and higher energy costs. In addition, many waterusers now view water as a non-renewable resource that cannot be wasted and are applying all affordable means to conserve. In some farm areas irrigation has either ceased or landowners are making the conversion to dryland farming.

In spite of these facts, water-level declines in many areas of the District, are still three to five feet per year with total historical depletion averaging 30 to 50% in many townships. This continuing decline is a great concern to water-users throughout the District, and is considered unacceptable by the Board of Directors.

After several months of intensive discussion, the Board of Directors determined that wateruse must be more accurately quantified if groundwater was to be seriously managed in Southwest Kansas. Therefore, the Board of Directors voted to require all non-domestic wells authorized by the Division of Water Resources to install an acceptable flowmeter (K.S.A. 82a-1028). The following paragraph details the results of that motion.

All wells authorized under a vested right, a certified water right, or an approved appropriation must be equipped with a flowmeter approved by the Chief Engineer. An administrative policy will be designed by the Board of Directors to implement a installation schedule to be completed in approximately five years. All flowmeters must be installed in accordance with specifications adopted by the Chief Engineer and maintained in a proper working order.

E. Rate of Diversion and Quantity of Water

Applications for permit to appropriate water for beneficial use for irrigation purposes shall not be approved for an amount of water to exceed an average of two (2) acre-feet per acre of land shown on the application. The reasonable rate of diversion and quantity of water for other uses of water may be considered on an individual basis.

F. Check Valves

All new irrigation wells completed after July 12, 1978, shall be equipped with a functional check valve capable of preventing the pollution of the groundwater supply by chemicals or other substances. All check valves shall be in accordance with specifications adopted by the Chief Engineer and maintained in proper working order.

G. Waivers

The Board may recommend approval to the Chief Engineer any application not consistent with the terms as set forth in Items (B), (C), (D), (E) or (F), herein above, if the Board determines that the proposed waiver will not unreasonably affect the public interest. The Board shall require the applicant to submit such information as it deems necessary in order to make such a determination.

H. Intensive Groundwater Use Control Area

The Board may, upon its own motion, or upon receipt of a petition signed by not less than 300 or by not less than five percent (5%) of the eligible voters in a proposed control area, request the Chief Engineer to initiate the proceedings of a control area within the District for the purpose of dealing with special groundwater problems.

Determination of the need for the establishment of a control area shall be based on reasonable cause to believe that:

1. The rate of withdrawal of groundwater within the area in question is declining or has declined excessively; or

2. The rate of withdrawal of groundwater within the area in question equals or exceeds the rate of recharge in such area; or

3. Unreasonable deterioration of the quality of water is occurring or may occur within the area in question; or

4. Other conditions exist within the area in question which require regulation in the public interest.

Upon the establishment of a control area, the Board and the Chief Engineer may take all reasonable and necessary steps required to conserve and manage the groundwater within the area for the benefit of the water users within the area.

6. Waste of Water

Waste of groundwater withdrawn from the District shall not be allowed. Action on waste of water will be taken in accordance with established policies and standards.

7. Weather Modification

Weather modification for rain augmentation and hail suppression appears to be a possible method of producing additional water and reducing crop damage. Successful rain augmentation offers the additional benefit of reducing the quantity of ground-water withdrawn for irrigation.

The Western Kansas Groundwater Management District #1 has operated a weather modification program throughout their District and in several counties within the boundaries of District No.3 since 1976. Several evaluations of that program indicate that weather modification is definitely having a major impact by reducing hail by 30-60%. This evidence is substantiated further by a decline in hail insurance premiums since 1976. The decrease ranges from 20-60%, depending on the county. Increased rainfall due to the program is more difficult to document, however, it does appear that an increase of 10% to 15% is possible.

Southwest Kansas Groundwater Management District No. 3 supports the efforts of the Western Kansas Groundwater Management District No. 1 and its weather modification program and will continue to encourage participation by all counties within the District.

8. Feasibility of Imported Water

Western Kansas and the Great Plains region offer one of the potentially largest food production areas remaining in the country. The major factor limiting production potential is water. Present water supplies will not be sufficient to support the current rate of groundwater withdrawals

forever. In the future, as the groundwater is mined out, water from other areas will need to be made available.

Importation of water from regions of surplus supply, such as Canada and Alaska, seems to be technically feasible if the economic and political aspects of such ventures could be resolved. The importation of water will, by necessity, be a large scale project under the direction of Federal and State Governments. The District will encourage the long-range planning and study of projects which are economically feasible and offer potential for the importation of water into Western Kansas.

VII. DISTRICT OPERATION

The District will be managed from an office in Garden City, Kansas. Additional offices may be established within the District, as necessary. The Board of Directors will be responsible for setting policy and objectives for the District to accomplish. The Board will employ such staff as necessary to carry out the programs.

The Board of Directors recognizes the need for the best possible management of the available resources. This local management effort is being directed toward new and improved methods of managing the water supply. Through research, education, demonstration projects, and management guidelines the objectives of the District will be accomplished.

The Board of Directors will meet periodically to review activities of the District and develop programs. An annual meeting for all eligible voters will be held early each year to provide information about the District's programs and allow for input from the membership.

TABLE 1 ---- GROUNDWATER MANAGEMENT DISTRICT #3

WELLS, APPROPRIATIONS, AND ACREAGE SUMMARY

County	1985 Irr. Acreage	1988 # Wells	1988 Total Approp.	Acres Within District	IRRIGATION # Wells	IRRIGATION Approp.	STOCKWATER # Wells	STOCKWATER Approp.	INDUSTRIAL # Wells	INDUSTRIAL Approp.	RECREATION # Wells	RECREATION Approp.	MUNICIPAL # Wells	MUNICIPAL Approp.	MULTIPLE USE # Wells	MULTIPLE USE Approp.
FINNEY	271,692	2,053	643,119	662,880	1,938	608,772	23	3,180	39	19,542	3	147	41	9,938	9	1,538
FORD	90,000	982	231,401	698,240	862	212,570	37	2,052	32	7,882	7	156	36	7,652	8	1,085
GRANT	155,470	804	360,639	365,440	753	349,831	6	1,826	34	5,424	2	956	8	2,533	1	69
GRAY	204,275	1,555	468,180	558,720	1,511	464,650	23	2,025	4	208	0	0	17	1,296	0	0
HAMILTON	34,720	106	48,714	72,000	106	48,174	0	0	0	0	0	0	0	0	0	0
HASKELL	262,000	1,050	498,615	371,200	1,011	491,755	23	2,653	7	2,576	0	0	7	1,160	2	470
KEARNY	110,900	697	273,146	463,200	864	270,106	8	802	11	1,115	0	0	11	998	3	125
MEADE	120,000	622	266,987	408,980	586	262,811	9	453	5	335	6	1,683	13	1,255	3	450
MORTON	75,000	412	141,770	465,920	375	137,282	0	0	24	2,517	0	0	12	1,692	1	280
SEWARD	161,630	592	252,312	413,440	520	234,528	9	2,200	35	6,245	1	80	24	9,012	3	247
STANTON	195,000	799	366,161	432,640	784	365,136	4	139	4	134	0	0	6	750	1	1
STEVENS	150,000	605	307,521	467,840	574	303,781	8	1,272	12	739	0	0	10	1,704	1	24
TOTAL	1,830,687	10,477	3,858,565	5,380,500	9,884	3,749,396	150	16,602	207	46,717	19	3,022	185	37,990	32	4,289