EDWARDS AQUIFER
AUTHORITY
900 East Quincy, San Antonio, Texas 78215

Agricultural Irrigation Assessment Form

All Irrigation Permit Holders must demonstrate their irrigation efficiency by completing an Agricultural Irrigation Assessment Form. If the Authority determines an irrigator to be less than 60% efficient, a Groundwater Conservation Plan will be required. Please see the Irrigation Groundwater Conservation Plan Form on pages 7-9.

Name: _____ **Regular Permit Number:** _____

Address: _____

City, State Zip: _____

Please complete the following questions as they pertain to your farming methods

1.) On the worksheet provided on Page 2, please provide the number of acres you are currently irrigating and what irrigation method(s) are being utilized (per field) under your Regular Permit.

2.) Are you contemplating changing the number of acres currently irrigated? (Circle One) Yes / No

3.) If yes, please indicate the change in number of acres and water delivery you anticipate using in the future on the worksheet provided on Page 3.

EXAMPLES OF IRRIGATION METHODS are as follows: Side roll sprinkler system, linear move sprinkler system, center pivot sprinkler system, micro irrigation system and surge flow irrigation system. If you are using an alternative water source in place of your previously used permitted Edwards well, please indicate below:

Example: ***(The total of current irrigated acres listed below is 675 acres).***

Irrigated Field No.	Current Method Of Irrigation	Acres Irrigated	Does Your Land Have Furrow Dikes? (Yes/No)	Do You Have A Tailwater Recover & Reuse System? (Yes / No)	If Your System Uses Drop Sprinklers, Please State If It Is LEPA, LPIC or LESA.
Field 1	Linear Move Sprinkler System	200	Yes	Not Applicable	
Field 2	Micro Irrigation System	150	Yes	Not Applicable	
Field 3	Surge Flow Irrigation System	150	No	Yes	Not Applicable
Field 4	Center Pivot Sprinkler System	100	No	Not Applicable	
Field 5	Side Roll Sprinkler System	75	No	Not Applicable	Not Applicable
	Total acres of all fields irrigated:	675 acres			

******Example Continued***

If you plan on changing your irrigation practice in the near future, please indicate the change of irrigation practice and include the number of acres to be irrigated**.**

Irrigated Field No.	Future Method of Irrigation	Future Acres to be Irrigated
Field 1	Same	same
Field 2	Same	same
Field 3	Linear Move Sprinkler System	100
Field 4	Same	same
Field 5	Same	same

********End of Example*******

Please complete the following table including the number of acres currently irrigated and the method(s) of irrigation per field.

Irrigated Field No.	Current Method Of Irrigation	Acres Irrigated	Does Your Land Have Furrow Dikes? (Yes/No)	Do You Have A Tailwater Recover & Reuse System? (Yes / No)	If Your System Uses Drop Sprinklers, Please State If It Is LEPA, LPIC or LESA.
Field 1					
Field 2					
Field 3					
Field 4					
Field 5					
Field 6					
Field 7					
Field 8					
Field 9					
Field 10					

Total acres of all fields irrigated: _____

If you plan on changing your irrigation practice in the near future, please indicate change of irrigation practice and include the number of acres to be irrigated**.**

Irrigated Field No.	Future Method of Irrigation	Future Acres to be Irrigated
Field 1		
Field 2		
Field 3		
Field 4		
Field 5		
Field 6		
Field 7		
Field 8		
Field 9		
Field 10		

4.) Which of these Best Management Practices are you currently implementing in your operation?

Best Management Practices	(Check all that apply)
Surge Flow Irrigation (BMP Irr-1)	☐
Sprinkler and Micro Irrigation Systems (BMP Irr-2) • Side Roll Sprinkler System • Linear Move Sprinkler System • Center Pivot Sprinkler System • Micro Irrigation System	 ☐ ☐ ☐ ☐

5.) If you are practicing any other best management practices not already indicated, please describe below.

6.) The total water use efficiency for my farm (all fields combined per permit) is at least 60% efficient. Yes/No (Circle One)

Total Water Use Efficiency is equal to the number of acres per field multiplied by the percent efficiency of each individual application method (see Irrigation Efficiency Estimates for use in estimating application efficiencies for various irrigation systems). After multiplying each field by the proper efficiency rating, add your totals. Divided your summed total by the total number of acres you are currently irrigating and multiply your answer by 100.

FORMULA: TOTAL WATER USE EFFICIENCY = Summed Efficiency ÷ Total Acres Currently Irrigated x 100

***Example**:*

Field 7 (100 acres Center Pivot LEPA)	X	Efficiency (90%)		90	
Field 8 (100 acres Flood No Surge)	X	Efficiency (50%)		50	
		Summed Efficiency	=	140	
			÷	200	(Total Acres Currently Irrigated)
			x	100	
			=	70	(% - Total Water Use Efficiency)

(This farm exceeds the minimum 60% efficiency standard).

I do hereby state to the best of my knowledge that the information provided to the Edwards Aquifer Authority is both complete and accurate.

Authorized Signature: _____ Date:_____

Irrigation Efficiency Estimates

Application Efficiencies for Various Irrigation Systems

Type	Efficiency (%)
Low Energy Precision Application (LEPA)	90-95
Low Elevation Spray Application (LESA)	85-90
Low Pressure in Canopy (LPIC)	85-90
Mid Elevation Spray Application (MESA)	80-85
Side (Wheel) Roll Laterals	60-75
Gun Type Sprinklers	50-60
Boom Sprinklers	50-60
End-tow Laterals	60-75
Hand Move Laterals	60-75
Micro Sprinklers	75-90(<1000 ft) and 70-85 (>1000 ft)
Point Source Emitters	95 (<1000 ft) – 90 (>1000 ft)
Buried Tape	95 (<1000 ft) – 90 (>1000 ft)
Furrow with use of surge valve	60-75
Furrow with no surge valve and no tailwater recovery system (Estimates may be higher if your system meets the USDA Irrigation Guide. Check with your local Natural Resource Conservation Service office for additional information).	50-55
Perforated Pipe	50

Center Pivots and Linear (Lateral Move) Sprinkler Systems with drop nozzles_____

LEPA (Low Energy Precision Application): Sprayers cannot be higher than 8-18" off the ground and furrows must be diked. Center pivots will use circular furrow and linear systems will use straight rows. Application efficiency is approximately 90-95%.

LESA (Low Elevation Spray Application): Similar to LEPA system except for the lack of some management practices and diking of furrows. Drop heights not to exceed 18". Efficiency ranges from 85-90%.

LPIC (Low Pressure In Canopy): Spray nozzles are 12-36" off the ground and within the canopy of the crop. Pressure in drop tube is usually 5 to 10 lbs per square inch. Efficiency ranges from 85-90%.

MESA (Mid Elevation Spray Application): Spray nozzles or applicators are located midway between the mainline and ground level. Water is applied above the crop canopy, even on taller crops like corn. Application efficiency ranges from 80-85%.

Side (Wheel) Roll Laterals: Lateral pipe serves as an axle to assist in moving the system sideways by rotation to the next set. The lateral is moved mechanically by a power unit (air cooled gas engine) generally mounted at the center of the line. Application efficiency ranges from 60-75%.

Gun Type Sprinkler: Large periodic move, gun type sprinklers are moved as a single impact type sprinkler head. When irrigating, the sprinkler is allowed to remain at one location until the desired amount of water is applied. Application efficiency ranges from 50-60%.

Boom Sprinkler: Are moved with a tractor similar to large gun sprinklers. Contains several closely spaced impact sprinklers or spray heads. It rotates around a central swivel joint where water is introduced. Power from the rotation comes from back pressure caused by directional sprinkler nozzles. Not suitable for use in windy areas. Application efficiency ranges from 50-60%.

End-tow Laterals: The end-tow lateral system is similar to a hand move system except that it consists of rigidly coupled lateral pipe and is mounted on skid plates or dolly wheels. The mainline is buried across the middle of the field. Laterals are towed lengthwise across the mainline from one side to the other with a tractor. Both ends of the lateral can be connected to the mainline via a flexible hose. Application efficiencies ranges from 60 -75% with proper management.

Handmove Laterals: This system is composed of portable pipelines with risers and sprinkler heads. Portable or buried mainline pipe with uniformly spaced valve outlets provides a water supply. Portable aluminum or sometimes plastic, lateral pipe has quick couplers. Risers and sprinklers heads are either center-mounted or end-mounted. Lateral sections are typically 20, 30, or 40 feet long. Application efficiency ranges from 60-75% with proper management.

Micro Sprinklers: Water is applied as discrete or continuous drops, tiny streams, or miniature spray heads placed along a water delivery line called a lateral or feeder line. With a spray or mini sprinkler micro irrigation systems, water is applied to the soil surface as spray droplets from small, low-pressure heads. The typical wetted diameter is 2 to 7 feet with discharge rates less than 30 gallons per hour. Application efficiency ranges from 75-90% (<1000 ft) and 70-85% (>1000 ft).

Point Source Emitters: Water is applied in discrete continuous droplets, tiny streams, or low volume fountain through small openings. Discharge rate is approximately 0.5 gallons per minute per individual drip emitter. Application efficiency ranges depending on length 95% at (<1000 ft) – 90% at (>1000 ft).

Buried Tape: Drip irrigation system. Irrigation tape is usually buried between 4 to 5 inches below the surface. Application efficiency ranges depending on length of tape used 95% at (<1000 ft) and 90 % at (>1000 ft).

Surge Valve: Is used in surface irrigation where flow is applied to furrows intermittently during a single irrigation set. With the proper management, surge valves have the potential to reduce infiltration rate, decrease advance time, reduce tailwater runoff and reduce deep percolation at the upper and lower ends of furrows. The use of surge valves can increase efficiency by 10-40%.

Perforated Pipe: Spray water from 1/16 inch diameter or smaller holes drilled at uniform distances along the top and sides of a lateral pipe. Application efficiency ranges around 50%.

EDWARDS AQUIFER AUTHORITY

900 East Quincy, San Antonio, Texas 78215

Irrigation Groundwater Conservation Plan Form

Your Irrigation Groundwater Conservation Plan Form Is Due: _____. Please submit your completed report to: Edwards Aquifer Authority, Attn: Groundwater Conservation Department, 900 East Quincy Street, San Antonio, TX 78215.

I. General Information

Permit Holder Name: _____ Regular Permit Number: _____

Permit Holder Address: _____

Permit Holder Phone Number: _____ Permit Holder Fax Number: _____

Permit Holder Email Address: _____@_____

Contact Person: _____

Contact Address (including City, State, Zip): _____

Contact Phone Number: _____ Contact Fax Number: _____

Contact Email Address: _____@_____

Brief Description of Water Use (crops, livestock, etc.): _____

If applicable, please describe any non-aquifer alternative water supplies you may be using and explain how these supplies may affect your duty to implement the BMPs:

_____

_____

_____

II. Irrigation Information

Please provide information only for acreage irrigated with Aquifer water. Include a map or plat to scale of the farm indicating location and size of each field.

Field Number	Current Irrigated Acres	Current Irrigation Method (flood, furrow, surge, etc.)	Planned Irrigation Method (surge, pivot, linear, etc.)	Planned Irrigated Acres
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

III. Best Management Practice (BMP) Implementation Information

Irrigation Best Management Practices

Irr-1 Surge Flow Irrigation System
Irr-2 Sprinkler and Micro Irrigation Systems

All irrigation users are required to complete Irrigation BMPs 1 and/or 2 noted above.

Please check the BMPs below that have or will be implemented and provide the appropriate information. Descriptions should include schedules, goals, cooperative parties and steps taken to avoid double counting of water conservation savings, supporting materials, etc. For applicable field number(s) refer to the table on Page 2 of the Agricultural Irrigation Assessment Form. If implementing the same BMP on multiple fields, provide implementation dates, completion dates, and water savings estimates for each field. Attach additional pages, if necessary, showing supporting documentation and calculation worksheets.

☐ Irr-1: Surge Flow Irrigation System

BMP Implementation Date: _____ Completion Date: _____

Applicable Field Number(s): _____

Describe the existing or planned surge irrigation system, which, at a minimum, includes butterfly valves or similar equipment that provides equivalent alternating flows with adjustable time periods and a solar battery provided timer. In addition please provide the number of acres per field irrigated. For proof of BMP completion please attach copies of equipment invoices or other evidence of equipment purchases and installation.

_____

_____

_____

_____

_____

Estimated water savings: _____ acre-feet annually

☐ Irr-2: Sprinkler and Micro Irrigation Systems

BMP Implementation Date: _____ Completion Date: _____

Applicable Field Number(s): _____

Describe the existing or planned sprinkler and/or micro irrigation system (i.e., side roll, center pivot, linear move, drip, bubbler, micro-sprinkler) and the number of acres per field irrigated. For proof of completion please attach copies of equipment invoices or other evidence of equipment purchase and installation.

_____

_____

_____

_____

_____

Estimated water savings: _____ acre-feet annually

IV. Certification

I hereby certify that the information given herewith is true and accurate to the best of my knowledge and belief. I understand that I must submit to the Authority triennial Groundwater Conservation Plan status reports, due by September 30 of every third year beginning 2011.

Signature of Permit Holder or Agent: _____ Date:_____