

GOLF COURSE WATER CONSERVATION PLAN GUIDELINES

Within the Southwest Florida Water Management District

All applicants for a water use permit (WUP) for irrigation of a golf course and its associated lawn and ornamental landscape are required to develop a Water Conservation Plan and submit it with the application pursuant to Rule 40D-2.101, Florida Administrative Code. Some permittees may be required to submit a Water Conservation Plan by a special condition on their WUP. This document is intended to be used as an aid for these applicants or permittees. Applicants or permittees may complete this document as a form and submit it as their Water Conservation Plan, although this is not required. A good Water Conservation Plan will address all the items on this document. Applicants and permittees in Water Use Caution Areas (WUCAS) are required to address all items on this document.

NOTE: IF YOUR GOLF COURSE USES REUSE WATER (RECLAIMED (TREATED) WASTEWATER or CAPTURED STORM WATER), **AND** REQUIRES LESS THAN 100,000 GALLONS PER DAY ON AN ANNUAL AVERAGE BASIS FOR IRRIGATION FROM WELLS OR SURFACE WATER SOURCES IF THE RECLAIMED WATER BECOMES UNAVAILABLE, YOU NEED ONLY COMPLETE THE REUSE SECTION ENTITLED, "LOWEST QUALITY WATER SOURCE FEASIBILITY ANALYSIS" on page 11.

Many golf course facilities offer a variety of courses as well as driving ranges. If these courses and ranges are irrigated and managed using the same practices, the information can be combined. If they are managed differently, please provide a separate Water Conservation Plan for each type.

The first part of this document is to examine your facility, and the second is to describe what you do or can do to improve water conservation. When responding to an item, please use additional sheets as necessary when your response does not fit into the space provided and be sure to reference your response to the subject. If you need assistance to complete this form, please contact the Water Use Permitting staff of your local Permitting Department. Addresses and phone numbers are on the WUP applications

General Information

WUP Number: _____

Applicant/Owner Name: _____

Golf Course Name(s): _____

Date Plan Submitted: _____

Agent Name: _____

Water Use Caution Area (WUCA) _____

Do you use reuse water for irrigation at this facility? Yes No

IRRIGATION SYSTEM MANAGEMENT

6. Decision to Irrigate

What monitoring method(s) do you use to determine when to begin irrigating? (Required in WUCAS) For those used, please describe how you use the method(s) checked above to make the decision to irrigate.

- Computerized system (describe inputs) _____

- Rain gauges _____

- Water table level observation well(s) (piezometers) _____

- Soil moisture monitoring devices(s) _____

- On-site weather station _____

- Use of evaporations pans _____

- Use of seasonal irrigation scheduling _____

- Observations (e.g. leaf wilt. Explain.) _____

- Other _____

7. Irrigation Timing and Duration

- a. How is the system operated? Manually Automatic/timer
- b. Is the irrigation system equipped with a rain sensor that will shut off the irrigation when it rains? Yes No

Golf Course Irrigation Water Conservation Plan Guidelines

- c. If the answer is no, when will the system be altered to incorporate an automatic shut-off? _____

- d. Describe how the system is operated to avoid irrigating when the soil is moist, when it is raining, or immediately after an adequate rain. _____

- e. How many irrigations systems which operate independently of each other are there at this facility? _____

- f. Can these multiple irrigation systems be operated simultaneously? Yes No

- g. How many independent irrigation zones do you have per irrigation system?

- h. Duration and frequency of irrigation is important with respect to drought tolerance. Please complete the following:
 - i. Duration (**minutes per zone**) of a typical irrigation cycle during :
 - (1) **tees and greens**
normal year _____ dry year _____
spring _____ summer _____ fall _____ winter _____
 - (2) **fairways:**
normal year _____ dry year _____
spring _____ summer _____ fall _____ winter _____
 - (3) **roughs:**
normal year _____ dry year _____
spring _____ summer _____ fall _____ winter _____
 - ii. Number of days per week each zone is irrigated during:
 - (1) **tees and greens**
normal year _____ dry year _____
spring _____ summer _____ fall _____ winter _____
 - (2) **fairways:**
normal year _____ dry year _____
spring _____ summer _____ fall _____ winter _____
 - (3) **roughs:**
normal year _____ dry year _____
spring _____ summer _____ fall _____ winter _____

- i. If you irrigate during the dormant season, please explain why. _____

Golf Course Irrigation Water Conservation Plan Guidelines

- j. How do you manage to meet your irrigation requirements under a Chapter 40D-21, Water Shortage Restriction Declaration where hours, time of day, and number of days of operation are curtailed)? _____

8. Cultural Practices

a. Chemigation and Fertigation

- i. How would you describe your chemigation and fertigation practices?

Done at regularly scheduled times. When: _____

Done only for pest or disease outbreaks (integrated pest management techniques)

Chemigation is not done.

Fertigation is not done.

- ii. If you fertilize the turf, do you use a fertilizer which has a nitrogen rating that promotes rapid growth even though that requires that it be irrigated more frequently?

Yes No

What is the fertilizer's nitrogen rating? _____

- iii. Are chemigation/fertigation and irrigation cycles simultaneous?

Yes No

If no, explain why and explain what you can and will do to improve coordination of cycles _____

- b. Grooming: Frequent mowing to keep the turf at a optimum constant height provides a dense canopy that not only looks pleasing, helps retain soil moisture by shading, but is more drought tolerant. Please describe your mowing practices on the fairways and roughs: _____

Golf Course Irrigation Water Conservation Plan Guidelines

c. What type of turf grass do you use on the:

- i. Tees/greens _____
- ii. Fairways _____
- iii. Roughs _____

9. Water Audit

a. Do you perform a water audit to evaluate the efficiency of your irrigation system and to check for leaks? Yes No

- i. If Yes, how often? _____
- ii. If No, why not? _____

b. If No, attach a plan for implementing regularly scheduled water audits. (Refer to it as **Proposed Audit Plan.**)

c. If you perform an audit, describe the audit procedure, results of the most recent audit, and your evaluation of the results on a separate sheet (Attach and refer to it as **Existing Audit Procedures.**)

10. Irrigation System Maintenance Indicate by putting the letter in the space to the left of each item to show how frequently each of the following activities are done and then briefly summarize your procedures during each activity.

- (a) weekly (b) monthly (c) every time you irrigate (d) as needed
- (e) not feasible (f) not applicable (g) not done

a. ____ Check controllers/timers for optimum operation: _____

b. ____ Use pressure gauge to check system pressures and flow rates for leak and clog detection: _____

c. ____ Clean system components (valves, filters, meters, etc.) _____

Golf Course Irrigation Water Conservation Plan Guidelines

- d. _____ Check to ensure equipment is not irrigating paved or other unintended areas: _____

- e. _____ Repair leaks and clogs; replace worn or malfunctioning nozzles: _____

- f. _____ Inspect and re-calibrate all master meters; _____

- g. _____ Other (explain): _____

11. **Course and Irrigation System Design:** Please describe the design of the course and irrigation system with respect to water conservation using the following points:

- a. Irrigation system
 - i. Type of irrigation head (impact sprinkler, rotary sprinkler, spray jets, spinners), and give the brand name and manufacturer's flow in gallons per minute per psi scale.

 - ii. Radius of coverage: What is the radius of coverage for the sprinkler/spray head used during design pressure? _____ What is the density of heads, and what percentage of the spray area per head overlaps with another spray area? _____

 - iii. Emitters: Identify emitters per course type area (tees/green, fairways, roughs) and give ratings. _____

 - iv. Volume Gun: If you use volume gun (pivot spray, portable gun, etc.), please explain why such a water intensive method is used. _____

Golf Course Irrigation Water Conservation Plan Guidelines

v. Are the roughs irrigated on the course? Yes No

(1) If yes, why? (Note: in the WUCAS, irrigation of the roughs are not permitted)

(2) If yes, describe how the roughs are going to be modified so that the area maintains its function without supplemental irrigation. _____

(3) If no, does an irrigation system extend into the rough areas? Yes No

vi. (Non-WUCA Areas) If the roughs are irrigated, please attach a plan that includes a schedule for when irrigation of the roughs will be eliminated. (Refer to it as **Elimination of Rough Irrigation**)

vii. (Non-WUCA Areas) If the roughs are irrigated the same as the fairways (duration, emitter output, etc), please explain why. _____

b. Course Design:

i. If the fairways are wider than 150 feet either side from a line drawn from the tee to the green, please explain why the fairways are so wide. Note, this DOES NOT INCLUDE ROUGH AREAS. _____

ii. Does your course utilize the capture of storm water runoff to supplement irrigation? Yes No

If the answer is no, please explain why not: _____

iii. Are there multiple tees for each hole? Yes No If yes, how many? _____

iv. Landscaping

(1) Are you familiar with water conserving landscaping methods, also known as Xeriscape™? Yes No

(2) Are the ornamental areas landscaped with native, drought tolerant, or Xeriscape™ plants? Yes No

(3) Please check here if you would like to receive information from the District on water-conserving landscaping.

(4) What percentage of "lawn and landscape" area is turfgrass? _____ %

12. Other System Management Practices

a. Please check any of the following water conservation measures you have undertaken or plan to undertake. Be sure to include the dates each item was implemented or is planned to be implemented.

Implementation Date

- Soil improvements (such as incorporation of moisture-holding polymers),
- Mulching landscaped areas,
- Conversion to low volume irrigation,
- Use of native, drought-tolerant plant selection,
- Replacement of existing plant material with more drought-tolerant and/or pest-resistant turf species to reduce irrigation needs,
- Decreasing acreage of irrigated turf in the lawn/landscape areas,
- Eliminating overseeding of fairways.

b. Please provide the general date the following irrigation system management practices were undertaken and describe how they were implemented. If they are not yet implemented, explain why and give an estimated date for their implementation.

Implementation Date

i. _____ Limiting high-frequency irrigation to tees, greens and the center of fairways (this should already be done in WUCAS) _____

ii. _____ Converting to a more water conserving irrigation method for turf.

- e. (Non-WUCAS) Describe your plans to eliminate irrigation of roughs, including an implementation schedule for doing so: _____

13. Other Irrigation System Improvements

Please check which of the following irrigation system improvements you have undertaken or plan to undertake. Be sure to include past or proposed implementation dates.

Implementation Date

- | | |
|-------|--|
| _____ | <input type="checkbox"/> Soil moisture monitoring system, |
| _____ | <input type="checkbox"/> Rain sensor shutoff system, |
| _____ | <input type="checkbox"/> Irrigation water recovery system, |
| _____ | <input type="checkbox"/> Pressure regulation, |
| _____ | <input type="checkbox"/> Flow control nozzles, |
| _____ | <input type="checkbox"/> Soil improvements such as incorporation of moisture-holding polymers into the soil, |
| _____ | <input type="checkbox"/> Course planning and design, and |
| _____ | <input type="checkbox"/> Other (explain) _____ |
| | _____ |
| | _____ |

14. Additional Activities

- a. Would you be interested in participating in research programs sponsored by the District? Yes No
- b. Are you interested in participating in a mobile irrigation laboratory program that would determine the efficiency of your irrigation system and provide suggestions for improvements? Yes No

LOWEST QUALITY WATER SOURCE FEASIBILITY ANALYSIS

A. **Reuse of Reclaimed Water** Reuse is defined as the deliberate application of reclaimed water, in compliance with Department of Environmental Protection (DEP) rules, for a beneficial purpose.

1. Is this golf course associated with a housing development that has its own waste water treatment facility? Yes No

2. Do you currently use reuse (reclaimed) water for irrigation? Yes No

a. If yes, give percent of total irrigation water that is reclaimed water, and identify the wastewater treatment facility(s):

b. If no, estimate the distance from your site to the nearest source of reclaimed water, and identify the wastewater treatment facility(s):

c. If no, provide a letter from the wastewater treatment entity detailing either:

- (1) When reclaimed water can be brought to this property, and an estimate of quantities available.
- (2) That reclaimed water is not available, and is not expected to be available within the term of the water use permit (est. 10 years).

3. If you do not currently use reclaimed water, and the local wastewater entity has indicated reclaimed water **is** available or **will be** available in the near future, but you decide to **not** get it due to economic considerations, provide a 20-year present value analysis comparing the cost of using reclaimed water to the cost of using the current or proposed natural source. If a supplemental or back-up source would be necessary if you used reuse water for irrigation include those costs in the analysis as well as costs associated with other necessary permits. For assistance, you may request and refer to the "Guidelines for Preparation of Reuse Feasibility Studies for Consumptive Use Permit Applicants" prepared by the Reuse Coordinating Committee from the Southwest Florida Water Management District and St. John's Water Management District, June 4, 1996. You may obtain this paper from the District Planning Department in Brooksville. Provide this response on a separate sheet and label "**Cost Estimate for Obtaining Reuse Water** "

B. Other Sources

- 1. Do you use tailwater recovery (of irrigation water) as an additional source of water?
 Yes No

If yes, or if planned, explain your plans on a separate sheet and label “Tailwater Recovery”

- 2. Do you withdraw irrigation water from surface water or storm water ponds?
 Yes No

If yes, or if planned, explain on a separate sheet and label “Storm Water Source”

PLAYER EDUCATION/EMPLOYEE AWARENESS

Using the appropriate letter (I or P), please summarize on the following list which player education and employee awareness measures you have already implemented (I) or plan to implement (P) under the “Activity” heading. If you have already implemented it, indicate the date and how frequently you re-introduce the activity to the players.

Activity	When Implemented/ Frequency	
_____	_____	Provide water conservation tips and information to players in their bills.
_____	_____	Use special mailings to provide water conservation tips and information to players.
_____	_____	Conduct public tours of your course(s).
_____	_____	Label Xeriscape™ plants in the landscaping and roughs with scientific name and common name to promote interest in local habitat.
_____	_____	Operate informational booths which include water conservation literature.
_____	_____	Seek employees’ and players ideas for water conservation, using contests, suggestion boxes or other incentives.
_____	_____	Install signs in restrooms and clubhouse encouraging water conservation.
_____	_____	Publish and distribute water conservation tips and information via newsletters, bulletin boards, or employee paychecks
_____	_____	Appoint an employee water conservation coordinator to design and implement your internal plan
_____	_____	Conduct other player education and employee awareness activities (please explain on separate sheet and label as “Player Education”)

Of the education and awareness programs you have implemented, which have been especially effective? _____

Of the education and awareness programs you have implemented, which have not been effective? Why? _____

PLANNED ACTIVITIES IMPLEMENTATION SCHEDULE SUMMARY

Please list any activities (and time frames) which are planned but have not yet been implemented (unless already included in a previous response).

Activity

Implementation Schedule

Person Responsible for Implementing Plan:

Signature

Date

(Please print name)

(Position at the Golf Course)

Thank you.