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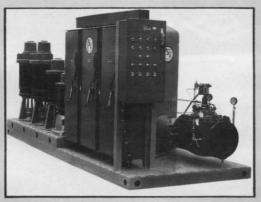
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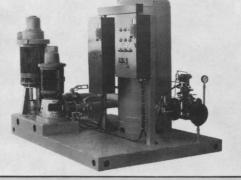
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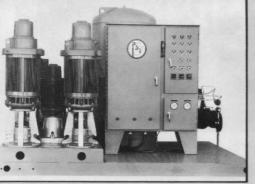


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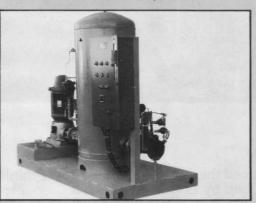
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2501 E. Commercial Blvd. Suite 212 Ft. Lauderdale, Fla. 33308 Because Florida depends solely on 60 inches of rainfall annually for its fresh water supply, the only way to prevent a drought similar to southern California's is to build adequate storage facilities now, the report stated.

Pete Rhodes, deputy director of resource planning, said desalinization — purifying brackish water in the aquifer — and deepwell injection — forcing fresh water into the aquifer for temporary storage — also are viable solutions.

The draft indicates that controlling the amount and periods of rainfall by cloud seeding is not being considered because of various economic and legal problems. Use of recycled wastewater for anything except irrigation purposes also was ruled out.

The plan in final form will be presented to the state Department of Environmental Regulation in October to be forwarded to the State Legislature.

## **Golf Turf Symposium**

The 14th Annual Wisconsin Golf Turf Symposium will be held in Milwaukee on October 24 and 25, at the Marc Plaza Hotel, 509 W. Wisconsin Avenue. **Please note the hotel change.** 

The subject is "Better Golf Turf Through Research", and will be centered around nationwide research reports. Speakers will illustrate the benefits gained from past research as well as projects underway now.

For further information contact Bob Welch, Milwaukee Metropolitan Sewerage District, 735 North Water Street, Milwaukee, Wisconsin 53202, (414) 278-2036.

## Happy Birthday Ray



Ray Gerber, Editor of The BULL SHEET, Official Bulletin of the Midwest GCSA, recently celebrated his 80th Birthday. Our congratulations Ray and we wish you many more happy and healthy years.

## **FLORIDA GOLF IN THE TALL PINES**

(Featured This Issue on Our cover) By DAVID BAILEY

Nestled in the southern slash pines of Delray Beach is Quail Ridge Golf and Tennis Club, a planned residential community started in 1973 and now in the final stages. Two championship golf courses give its resident members an enjoyable golfing challenge.

The south course opened in the fall of 1973 is two years older than the north course, both are creations of architect Joe Lee. Each September Quail Ridge is host for the sectional qualifying of the USGA Seniors Tournament.

Fred Dickson is golf course superintendent. Fred planted the hybrid bermuda turf at Quail Ridge when he was employed for Patten Seed and Turfgrass Company of Tifton, Georgia. After planting the grass Fred stayed and is the only superintendent Quail Ridge has ever had. His previous eleven years experience with Patten made Fred well qualified for his position. He planted courses from Washington D.C. to Arkansas and south into the islands. Under the direction of noted turf specialist, Bill Roquemore, Fred maintained the 1,000 acre nursery and grew-in countless courses. A ten handicap golfer, Fred says he has a unique situation at Quail Ridge with his bermuda greens. "We have Tifgreen 328 on one couse and Tifdwarf on the newer course and the putting difference causes problems. The Tifdwarf is the superior surface, with it I can achieve the speed and texture our members desire. We hope to replant the Tifgreen 328 next summer to Tifdwarf."The tees and fairways are Tifway 419 bermuda.

When you stray from the fairway if the pine trees do not cause trouble the sand traps will. The total traps on the two courses number 203, all big and deep. The average green size is 6,000 square feet. All the tees have a high elevation giving a nice panorama of each golf hole.

Quail Ridge is owned by Quail Ridge Limited, and the corporate president is John Dodge. In the near future the residents will assume ownership of the golf courses. Les Frisinger is the director of golf and club manager.

Visiting Quail Ridge leaves the lasting impression of a development done with the natural beauty left as it was found . . . one of the best in South Florida. The exquisite homes and choice villas are beautifully landscaped to fit the charm of the environment. The landscape design and constant maintenance of the villas, club house and roadways is under the direction of Sathena Cabler, Ph.D. Her total staff numbers forty people.

Golfing at Quail Ridge is relaxing in a natural setting and that is the purpose of the game.



Fred Dickson, Quail Ridge Superintendent, Sathena Capler, Ph.D., landscape designer and Les Firsinger, director of golf.



### **SOUTH FLORIDA ELECTS OFFICERS**



Newly elected officers and directors of the South Florida GCSA are (from left) Ken Nicholson, Woodlands CC, director; Dick Lemmel, Doral, vice president; Brad Kocher, Inverrary, director; Alan Weitzel, Metro Dade golf courses, president; Dan Jones, Aventura, past president; Fred Klauk, Pine Tree, secretary-treasurer; and Phil Amman, Bonaventure CC, director.

#### **AL WEITZEL ELECTED PRESIDENT**

Alan Weitzel was elected president of the South Florida Golf Course Superintendents Association at a July 10 meeting at Pine Tree GC.

Weitzel, 29, is superintendent of golf courses for Dade County's five courses: Key Biscayne GC, Greynolds Park GC, Haulover GC, Palmetto GC and Briar Bay GC. He has held that position since April of 1977. Before that he worked at Crooked Creek G & CC and Palmetto.

Also elected at the meeting were Dick Lemmel of Doral CC, vice president; Fred Klauk, Pine Tree CC, secretary -treasurer. Elected as directors were: Phil Amman, Bonventure CC; Brad Kocher, Inverrary CC; and Ken Nicholson, Woodlands CC. Also to serve on the board will be past president Dan Jones of CC Aventura.



## Scientists Warn ... Gasohol And Small Engines May Not Mix

Now that Gasohol has been appearing in service station pumps and receiving widespread publicity, the handyman naturally asks, can I use Gasohol in my lawn and garden equipment? Should I use it?

Scientists at the Tecumseh Research Laboratory, Ann Arbor, Michigan, have issued a cautionary warning regarding its use in small engines. The lab is operated by Tecumseh Products Co., a firm with sales of \$750 million annually in small engines, air conditioning and refrigeration compressors.

In 1974, the company developed a blend of 10% anhydrous isopropyl alcohol and 90% gasoline (labelled IPA) to stop corrosion caused by tiny fuel residues that remained in every one of its engines after factory-testing.

Use of this mixture successfully cured problems associated with the condition commonly referred to as "sour gas." But, warn the scientists, there's a difference between Tecumsh's test fuels and Gasohol, and a difference between automobile engines and small engines for outdoor power equipment. Anhydrous isopropyl alcohol reacts with the peroxides which develop in fuel because of the water content in the gasoline. it neutralizes them, and in the process gets converted to acetone, which is harmless to engines. However, Gasohol genrally contains grain or methyl alcohols that are not anhydrous. These alcohols react with the water content present in Gasohol and tend to form strong acids which can corrode metal parts, even eat rubber and plastics.

This is particularly evident in cases of off season storage of lawn and garden equipment where the fuel supply is likely to be stored for a long time.





There's also a significant difference between automobile and lawn and garden equipment engines. Except in cold starts, a car does not run with rich fuel/air ratios. Government-required efficiency and emission controls preclude consistent rich operation. However, in small engines the situation is different. They do run rich, and they are stored for long periods. Here, the potential for corrosion is very real, and this corrosion comes from the acid formations.

Tecumseh's scientists advise you to play it safe. Decide for yourself the pros and cons of Gasohol in your automobile. But, save potentially expensive repairs and parts replacement costs by using only unleaded regular gasoline or leaded regular gasoline in your outdoor power equipment.



#### A SCARCE AND PRECIOUS RESOURCE: WATER By Richard Nugent, Golf Course Architect

Probably the most important concern of golf course architects, course superintendents and other turf grass managers in the world today is water — its availability, its quality, its application.

Fresh water is a scarce and precious resource. There is a great deal of water on the earth but little of it is available to us as "fresh water." We are reminded of lines from Samuel T. Coleridge's The Rime of the Ancient Mariner, "Water, water everywhere, nor any drop to drink."

The drought prevailing in California during the recent PGA championship at Pebble Beach brought forcibly to our attention, through the medium of television, the situation faced by many water-poor areas in the world. If existing courses are to continue to be maintained to today's standards, and if new golf course development is going to occur to meet the growing need of our population for recreational facilities, new water sources must be found.

It was this problem which brought together the American Society of Golf Course Architects' Foundation, the Golf Course Superintendents Association of America, the United States Golf Association and the National Golf Foundation, as allied associates in golf, to sponsor their first joint seminar to address an industry-wide concern. This was the Wastewater Conference held in Chicago last November. The proceedings of this seminar are available through the offices of each of the participating organizations.

The Wastewater Conference highlighted many of the opportunities, as well as some of the problems, in the current state of the art of using recycled water for irrigation purposes.

The Federal Government is interested in recycled water — so much so that up to 85 percent government financing can be available for golf course construction, should the golf course be used also as a primary on-land disposal system for effluent water. Recycled water is a promising solution to two problems. First, as the source of water for irrigation and, second, as a method of effluent disposal which will serve to recharge ground water tables.

As with any such new technique, there are inherent problems. Sewage disposal plants discharge effluent 365 days a year, winter and summer, rain or shine. The irrigation needs will obviously not always mesh with the disposal needs and the water will have to be recycled through construction of temporary holding ponds or other types of reservoirs.

Many people are apprehensive about this type of water re-use and if the program is to be successful, the public must be convinced that use of waste water is not only desirable but is safe as well. The quality of waste water going through treatment plants is not always consistent, nor is the level of pollutants. There are times when the water treatment plants may receive more disposal water than can be adequately treated and will have to discharge a more raw product, or a product with higher levels of contaminants.

There are a number of projects in the United States where recycled water is currently being applied successfully.

In Muskegon, Michigan, waste water is being applied in a large agricultural project where it meets EPA and FDA standards in the production of food safe for human consumption. This project was instituted after a number of legal ramifications where the state successfully prosecuted a lawsuit against local groups attempting to block the project.

This particular project is important for two reasons — first, the legal precedent is established for the use of recycled



water, and second, this water is used to grow crops for human consumption — a far more critical usage of recycled water than when employed for turf grass irrigation.

Another instance is in the Caribbean area of heavy tropical rainfall and insufficient fresh ground water supplies. The golf courses at the Dorado Beach Hotel in Puerto Rico are irrigated with recycled water.

Last year our firm did a feasibility study for a golf course development in the Virgin Islands. On the site was one well which had the greatest capacity of any on the island (50 gallons per minute) and several other wells capable of producing five gallons per hour. Obviously, this is an insufficient supply of fresh water for a golf course/housing development. Golf course irrigation in such a situation is feasible only through the use of recycled water, or other more expensive forms of desalinization of salt water.

The golf course feasibility depended on the use of fresh water for the housing development, as potable water, and use of the water again, recycled, for irrigation of the golf course and landscaped areas. This was at St. Thomas where much of the fresh water for the entire island is brought in by barge from other areas in the Caribbean.

In our own western states there is a successful project at Los Alamos, New Mexico, where a golf course constructed during the second World War has had about 35 years of successful operation, using recycled water.

The Air Force Academy at Colorado Springs is another golf course recreational turf facility which is successfully irrigated with recycled water.

The Sharp Park golf course near San Francisco operated successfully from 1932 through 1976 with effluent from the county jail. In 1976, the flow from the county jail was tied into a new sewer system. However, recent drought developments have caused the local officials to consider re-establishing their use of the effluent water for irrigation purposes. The only complaints at this golf course came from a few players who objected to the odor at the beginning of each season, after the ponds had been sitting for most of the winter.

Another example is Innisbrook Golf Course near Tarpon Springs in Florida. There are 63 holes completely irrigated with effluent water on all the tees, greens, fairways and roughs. An effluent treatment plant was built in 1975 by the Pinellas County Pollution Control Department. To dispose of the effluent, the county would have been required to build an expensive waste (Continued on Page 29)

#### A SCARCE AND PRECIOUS RESOURCE: WATER

(Continued from Page 28)

water disposal system which would carry the sewage effluent far out into the Gulf of Mexico to avoid potential shoreline pollution problems.

Meanwhile, Innisbrook was having a problem with salt infusion into their fresh water wells. Therefore, the use of the golf course as an on-land disposal area for the county's effluent was an answer to problems of both parties, and the county contracted with Innisbrook to deliver 3 million gallons per day by underground pipeline, constructed by the county, to Innisbrook, where this water is fed into five pumping stations located throughout the golf course properties.

The golf courses along the north branch of the Chicago River are known around the world as some of the finest in existence. These courses have been irrigated for over fifty years with water drawn out of what is in essence a drainage ditch.

Recent studies have shown that in periods of low flow, these waters tend to contain more pollutants which may be detrimental to the development of fine turf grass; consequently, during these periods the golf courses have been supplementing their irrigation water from the canal with fresh water from the city water lines.

The North Shore Sanitary District is in the process of completing a new water treatment plant in Highland Park, Illinois. The Sanitary District's engineer, John P. Kottcamp, Jr., is working with the local golf course superintendents and the University of Illinois to develop some test plots to determine the feasibility of using the effluent for turf grass irrigation. Should the tests prove positive, as anticipated, the North Shore Sanitary District will install a water main to carry the effluent water along its right-of-way to supply water for irrigation purposes to the golf courses, parks and other recreational facilities within its jurisdiction.

According to Kottcamp, the situation in the area is becoming critical. As the population of Chicago's northern suburbs continues to increase, so do water needs increase. However, they are limited by law as to the amount of water that can be drawn from Lake Michigan, as this water does not return to the lake but through the Chicago River system feeds to the west into the Mississippi basin.

With this limitation in the amount of available water, the Sanitary District is looking for alternate sources for irrigation use, to supplement its supplies and meet the growing demand.

The turf plots at the new Clavey Road sewage treatment plant will be maintained by the staff of the Northmoor Country Club and tests will be made and evaluated by the University of Illinois. We were privileged to assist in the design of the plots and local contractors and suppliers have volunteered their services to assist in the project. We feel that this research being done by the local people at the grass roots level is the type of thing that all communities should be doing.

**Probably the greatest achievement** in the history of mankind has occurred in our lifetime. Man has gone out into space, walked on the moon, and returned to tell about it. And we have had the privilege of watching the whole thing on our television sets. One of the most stirring things to come out of the space program was the picture of the planet Earth taken by the astronauts from space. It has made us realize that this beautiful and fragile sphere on which we exist is really Spaceship Earth and its care has been entrusted to us. Our responsibility is to use it, enjoy it and leave it better than we found it. But water is the primary source of life on this planet — there is no new water; only recycled water. NOTE: Richard Nugent is a member of Killian and Nugent, Inc., a golf course architectural firm located in Long Grove, III. This article is based on a presentation made by Nugent at the GCSAA Turfgrass Conference in Atlanta in February 1979.

Editors Note: This article was found in the April 1979 issue of "National Golf Foundation Golf Market Report" and we wish to thank The National Golf Foundation for permission to reprint.

#### **Everglades Elects Officers**

The Everglades G.C.S.A. has elected officers fo 1979-80. Elected were: President, Bob Sanderson, C.G.C.S., Port Charolotte Golf Club; Vice President, Clint Smallridge, C.G.C.S., Royal Poinciana C.C., Naples; Secretary-Treasurer, Virgil Petty, Golden Gate Golf Club, Naples.



## FEDERAL FUNDING SPURS WASTEWATER IRRIGATION FOR RECREATIONAL TURF

By Lorraine Abbott NGF Great Lakes Region Director

Golf course builders and operators who are seeking ways to cut irrigation costs may discover the answer by meeting with their local municipality or independent sanitary district — for two reasons. First, the use of lowcost wastewater as an irrigant for recreational turf is steadily increasing, as more and more research bears positive results where such irrigation is properly managed.

Secondly, to provide the sanitary district with an onland source of wastewater disposal would be helping the district meet its obligations to the federal government, in a manner that conceivably could be eligible for major government funding that would benefit not only the water providing source (the district) but the water receiving source (the golf course) as well. Here's why.

The Federal Water Pollution Control Act of 1972 requires that a zero degree of discharge of pollutants to the land surface be achieved by 1983. In response to this charge, municipalities have had to find alternate methods of wastewater disposal.

Recreational turf has proven to be an effective filter for tertiary treatment while at the same time the effluent water, properly managed, has provided the soil the nutrients it needs **without** harmful effects and **without** the displeasureful odor customarily attributed to wastewater treatment plants.

When the Federal Water Pollution Control Act was implemented in 1972, government funding, for community-engineered treatment projects, was elevated from 55% to 75% of the eligible capital costs. December 1977 found even more incentive incorporated into regulations, whereby a 10% "bonus" to the funding level would be available if the sanitary district met certain criteria; namely, that there was evidence of:

• Consideration being given toward using particles in the wastewater "for agronomic purposes" (which can include recreational turf),

• New advances in wastewater treatment technology would be achieved in the proposed project.

In essence, then, government funding for wastewater treatment projects that provide low cost soil irrigation while cutting pollution in our streams and lakes is higher than ever before, with eligible projects capable of being granted up to 85% of their capital costs. Such incentive will turn the ears of municipalities toward inquiring golf facility and recreational turf managers, given conditions of need.

**Currently, more than 75 golf courses** in the United States are using wastewater irrigation, with public understanding and acceptance increasingly being assured through informative public relations efforts by course owners and treatment authorities. Tertiary stage effluent appears to the eye to be no different than a glass of drinking water.

#### **CONFERENCE PROCEEDINGS**

In mid-November 1978, the United States Golf Association Green Section, the National Golf Foundation, the American Society of Golf Course Architects Foundation and the Golf Course Superintendents Association of America jointly sponsored a conference on Wastewater Irrigation of Recreational Turfgrass in Arlington Heights, IL.

For information on how to receive a copy of the proceedings of the meeting write USGA, Golf House, Liberty Corner Road, Far Hills, NJ 07931 ph: 201/234-2300.

The actual number and identity of courses indirectly benefitting through government-funded municipal treatment projects in given regions of the country can be determined by contacting your regional Environmental Protection Agency (EPA) office (list follows). This number may be small as yet, because funding regulations regarding disposal did not specifically use the words, "recreational turf" until 1977.

Municipalities considering upgrading of their wastewater treatment systems should investigate nearby recreational turf sources of disposal and then contact their state EPA office to determine eligibility for federal funds.

Congress allocates varying amounts to each state according to population and existence of water pollution problems. Once allocated, monies are subject to the state's own priority list of recipients, the final decision being based upon population density, urgency of pollution problems and the degree to which new equipment construction needs are seen to exist.

#### **Regional Environmental Protection Agency Offices:**

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