



Gulf Coast Waste Disposal Authority Houston, Texas





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## 1989-90 BOARD OF DIRECTORS



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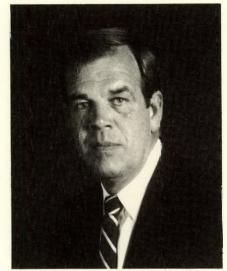
#### FROM THE GENERAL MANAGER

September of 1989 marked the 20th Anniversary of Gulf Coast Waste Disposal Authority. It is my privilege to have been selected by the Board of Directors during this commemorative year to lead the Authority into its third decade. Standing with me is a staff representing some of the top expertise in the field of waste management.

Taking on the position of General Manager means accepting the responsibility for maintaining our current level of service and of seeking new projects and new processes which serve to clean up the waters flowing into Galveston Bay. It means joining with the Board and the Staff in giving recognition to the first General Manager of the Authority, L. Jack Davis, who led this organization from concept to reality. It will take hard work and dedication to live up to his 18 years of service to GCWDA.

GCWDA stands ready to move this organization into its third decade. A major challenge is the effective removal of toxic materials from wastewater. Technology can now measure various constituents at levels down to parts per quadrillion. (One part per quadrillion has been compared to one second out of 32 million years.) New levels of detection may well mean new requirements for treatment. As always, GCWDA will seek out the technology to do the job of treatment, effectively and economically.

But as surely as improvements in removing impurities are made, an increase in the production of sludge is realized. Disposal of both municipal and industrial sludges is the great challenge of the immediate future. For the last three years GCWDA has worked to develop a project in conjunction with private enterprise to dispose of sludges through deepwell wet oxidation. The process holds tremendous promise. Cities and utility districts could save money and landfill capacity if wet oxidation realizes its potential. Growing out of that effort is another project to dispose of industrial



Dick Brown

sludges. Stretching the boundaries of technology, the supercritical wet oxidation process may well prove to be tough competition for conventional incinerators in the destruction of hazardous waste.

Another continuing goal is the solution of solid waste disposal problems. Burying raw garbage is wasteful... and getting more expensive every year. Technology exists to reclaim aluminum, ferrous metals and other materials. The remainder can be burned to reduce the volume of solid waste before landfilling, expanding landfill capacity by 90 percent. A by-product of incineration can be steam production for various uses including the generation of electricity

Reduction of waste, treatment of wastewater, recycling, sludge and solid waste management . . . all contribute to a better environment, to a cleaner Galveston Bay.

Twenty years ago the Legislature ordered a new district to clean up the Ship Channel and to protect Galveston Bay. GCWDA has made a significant contribution to the steady improvement of water quality in its region of operation. Is the job finished? Not by a long shot. In environmental protection the job is tough and never ending, but GCWDA remains dedicated to the premise that economic growth and responsible waste management can and must coexist.

# CHAIRMEN OF THE BOARD

Frank Fisher Present Chairman, 1983

It has been my privilege to serve as Chairman of the Board of Directors for GCWDA since 1983. During that time I have been, and continue to be, a strong supporter of the goals of this organization. Simply stated, it is the mission of the Authority to protect the Galveston Bay estuarine system through waste management practices which are environmentally sound and economically feasible. In working toward that goal, the previous chairmen and directors of the Authority provided us a significant legacy. They not only survived those difficult early days and built a viable organization, they also envisioned and carried out a plan of environmental assistance never before accomplished in the United States. In these pages you will read of pollution control bonds used to finance environmental projects, of hands-on treatment of both industrial wastewater and municipal sewage and of solid waste management. Completely overshadowing the physical accomplishments of Gulf Coast Authority is the spirit of cooperation which allowed this public/private partnership to work. Those cities and districts and industries which participate with us in pollution abatement do so voluntarily, not because some agency or law mandates their relationship with GCWDA. In January of 1973, the very first contract in the nation for a regional wastewater treatment facility to serve industry was signed. The five companies which voluntarily joined with Gulf Coast Authority to create the Washburn Tunnel Facility were Champion International, Crown Central Petroleum Corporation, Air Products and Chemicals Inc., Atlantic Richfield Company and Petro-Tex Chemical Corporation. Some 18 years later a few of the names changed, but those locations continue to participate with GCWDA in regional treatment.



Frank M. Fisher, Jr. received his B.A. from Hanover College, M.S., Ph.D. from Purdue. Dr. Fisher is a professor of the Department of Biology at Rice University. He has authored and co-authored many publications and serves

on the Editorial Boards of several professional journals. Dr. Fisher directs biological research in a 70,000 acre open air laboratory in the Texas wetlands. He and his wife, Pat, have two children.

I want to express my most sincere thanks to the families of our Board members, past and present, for their unself.sh tolerance of the many absences inflicted by Authority business.

Through your generosity, you too have been instrumental in the success of our organization. It is with pride that I offer congratulations to current and former Board members and, especially to our past chairmen: Gen. Royal Hatch, Mr. Arthur Alpert and Dr. Tom Arnold.

W. Tom Arnold Chairman, 1981–1983

I appreciate the opportunity to share my thoughts and experience of the early days and years of the development of GCA with you from memory.

I knew the late Sen. Criss Cole and his desire, with the help of the Texas Legislature and especially the direction of then Gov. John Connally, to clean up the pollution by industry and protect the jobs of our petrochemical workers of the Port of Houston and Galveston Bay waters. The Texas Legislature passed the landmark statute in 1969.

Gov. Preston Smith was the first to make the Governor's appointment. He appointed me to the board in 1969 because of my interest in salt water fishing in Galveston Bay and offshore. Mr. Doug Toole recommended me to Gov. Preston Smith. I knew both men personally.

The GCA was the only authority at that time of its kind in our entire nation to work with industry with legislative legal power to encompass such an endeavor. It was to prevent Galveston Bay from becoming a "dead bay" and our immediate offshore waters from becoming a "dead sea."

Our first duty as a constituted, legal board was to find a general manager and money to run such an authority. I must say, without any reservations, we found the right man at the right time, Mr. Jack Davis. He devised the means and money to develop the GCA. In my opinion, without Mr. Jack Davis and his innate abilities to work with the board, industry and government, GCA would never have prospered or perhaps ever survived. He had the dedication, the brain and the energy of a "human silver bullet."

I was fortunate to serve under the appointments of Democratic and Republican Governors



W. Tom Arnold received his BA and MD degrees from University of Texas Medical School in Galveston. He served his internship at Hermann Hospital. Arnold joined the Army and served at Walter Reed General Hospital in

Washington, D.C. He now practices at Diagnostic Clinic in Houston. He is a member of numerous organizations and is active in community service. He and his wife, Kay, have two children.

and the records show my attendance to all board meetings and committee meetings was almost 100%. The Board had many controversial issues to come before it but with the steady hand and political savvy of Mr. Jack Davis and all members of the board and staff, we grew rapidly in the confidence of the public and political power in Austin and Washington, D.C., as well as the environmentalists.

Industry in the private sector, government, environmentalists and politicians came to trust GCA and work with it to accomplish the goal of "clean water" for Galveston Bay and offshore waters for Galveston, Harris and Chambers Counties.

I was proud to be elected Chairman of the Board in 1981 and served as Chairman until I voluntarily resigned after 14 years of service in 1983.

The GCA has been and will always be dear to my heart because it taught me many things, especially how the private sector, government and politicians can and will work together if dedicated men and women put their hearts and shoulders together. May this next decade and century bring many more accolades to the Gulf Coast Waste Disposal Authority.

Arthur Alpert Chairman, 1979–1981

It doesn't seem possible that you are going to celebrate your 20th Anniversary. Time really flies.

My observations will not dwell on the past, but rather suggest a program for the future.

To lay the proper groundwork, those of us who have been involved are well aware of the tremendous success that GCA has enjoyed in the fight for a cleaner environment.

My challenge for the next 20 years is twofold. First to make known throughout the country how industry and government can work together to produce miracles like the cleanup of the Ship Channel. Also how municipalities which put aside their petty concerns and join together can effectuate a sound financially effective solution to their waste disposal programs.

Secondly, once that story has been told and understood, a task force should be formed to be available to help the innumerable situations in our country that need such assistance.

In this way we become evangelists to spread the word of a system that works and to enfold those who will become believers.

In this way we can help formulate a solution to a grave problem in our nation, one that we recognized 20 years ago.



Arthur Alpert graduated from Duke University with a Bachelor of Science in Civil Engineering. He did graduate work at Harvard University in soil mechanics. Alpert was active in civic activities in Galveston

County which included Galveston County Mental Health and Mental Retardation Center, Galveston County Cultural Arts Council and Galveston County Research Council. He and his wife, Estelle, have two sons.

Royal Hatch Chairman, 1969–1978

It was, of course, early in 1970 that the Texas Legislature authorized three counties to do something about wastewater disposal. A short time later the first board met in Clear Lake City, looked at one another: John Wildenthal, Tom Arnold, Dave Stewart, Arthur Alpert, Bill Bush, Tom Jenkins, Bill McAlister, Lamont Jennings, myself, and said, "How do we pronounce this monster?"

Talk about a blank sheet of paper! None of us really knew what our mission was; there was some language about cleaning up the water, including the Houston Ship Channel, and we also were given taxing authority—for what we did not know—but subject to the voters' approval.

Of course, the first thing we looked for was some technical assistance and Houston's great engineering firms labored manfully in making technical presentations. It was then we realized the wealth of talent Houston had available and, of course, Bernard Johnson and Jim Dannenbaum have rendered valued service for the Gulf Coast Authority since those early days.

The second thing was what to do about the taxes. We decided we needed some money for enforcement and we decided we would go to the voters against the opposition of just about everybody in town. Included in our most vocal opponents was a man who shall be nameless but who was running for election and decided to take us on as a campaign issue. I think we both won because the tax referendum failed (but not by a wide margin) and, as our successors have proved, it was not necessary.

Next was to hire a general manager and Dave Stewart rendered valiant service in finding Jack Davis, a banker from West Texas, a former city manager whose inexhaustible energy and great



Royal Hatch retired from the Air Force as a Brigadier General. Between periods of active duty, he was a businessman in Birmingham, Alabama. In 1966 Hatch joined IBM in the Washington, D.C area and later moved to

IBM's Houston operations. He was always active in community affairs, a member of the U.S. Olympic Committee and National Aeronautics Association. He and his wife, Nancy, have three children.

vision helped us answer the question of what we were for.

The rest of the story is pretty much on the record. I think the ship channel now has fish. More important, 20 years have shown that the way to go in public service is through a cooperative, non-adversarial partnership between the public and private sectors.

I think the Gulf Coast Waste Disposal Authority under a succession of dedicated board people, plus Jack Davis and Dick Brown, has lighted that new way. I am proud and honored to have been its first chairman and I remember those days fondly. My regards to all who are still working at it. My best to each of them.

#### IN RETROSPECT

THE AUTHORITY TWENTY YEARS—WHY IT SUCCEEDED

When I was invited to write a dissertation on my recollections and impressions of the first 20 years' history of the Authority, I accepted with enthusiasm and pleasure. I was given the option of two paragraphs or two pages. It just cannot be done—even in two chapters—but here goes!

At the outset, let me take a little license and acknowledge the role of industry in assuring the success that the Authority has enjoyed. Industry, as a group, has taken a lot of heat for creating the problems and for being recalcitrant in effecting needed changes. Some of the criticism was justified, particularly in the early years, but without solid and continuing support by individual industries and individuals within those industries, the Authority could not possibly have achieved the milestone attributed to it.

The creation of the Authority was a noble venture dedicated to a noble purpose—to halt the pollution of our streams, bays and estuaries and to bring them back to life and to be sure that the desecration of our natural environment would not recur. This feat was accomplished because there were dedicated people committed to that purpose.

Foremost among that group of distinguished people was the man who came to be known as the Father of the Authority, then Senator Criss Cole. Sen. Cole was a blind man who had the wisdom to perceive the problem and the vision to understand its essential need. He authored and guided the Legislation through two sessions of the Legislature. Governors John Connally and Preston Smith endorsed and supported the concept. Senators Babe Schwartz and Chet Brooks were key supporters. There was a large body of support from the three-county delegation, essential for any new idea. The need was there and the elected officials did rise to the occasion.



Jack Davis General Manager, 1970-1938

The initial idea for creation of a regional authority came from a Congressional study headed by US Sen. Edmund Muskie of Maine. He found only one Governor willing to endorse the idea for his State. That was John Connally, who remained an active supporter years after leaving the State Capitol.

Others in the roll call of key figures in the origin and development of the Authority would be Mayor Louie Welch and City Attorney Bill Olson of Houston, Chairman Gordon Fulcher and Executive Director Hugh Yantis of the Texas Water Quality Board, EPA Regional Administrators John White and Adlene Harrison, US Senators Lloyd Bentsen and John Tower, US Representatives Bill Archer (an early and perennial supporter) and Jack Brooks, original counsel Wiley Caldwell and consultants Tom Masterson, Bernard Johnson and Jim Dannenbaum. And a host of others!

A rather fascinating set of circumstances also provided the Authority with the right Chairman at the right time. Gen. Royal Hatch, a salesman for the concept, was the first Chairman and was followed by Arthur Alpert, businessman and banker, Dr. W. Tom Arnold, medical doctor (and pretty good politician) and current Chairman Dr. Frank Fisher, a knowledgeable conservationist. Each of these men has given generously of his

time and each had particular talents that fit the needs of the Authority during his tenure.

Space does not permit me to list and laud each of the Board members who served and it would not be fair to single out a few, because all of them gave their time ably and willingly. Perhaps I should comment on two—for different reasons. Judge John Wildenthal has been the appointee of the Harris County Mayors for the entire 20 years, the only remaining original member. J. Kent Hackleman came on the Board as an outspoken critic and opponent but left after two years as an unabashed advocate, not an easy transition.

During my 18 years as General Manager, the Authority became known worldwide for its regional approach to pollution control and the innovative uses of technology to help clean one of the dirtiest bodies of water in the world—The Houston Ship Channel. It will never be, or is it supposed to be, a fisherman's paradise. But, shellfish flourish and fish swim there now, which means that Galveston Bay and the Gulf of Mexico are infinitely better now than two decades ago.

The media has been fair to us, particularly Harold Scarlett and Earnest Bailey of the *Houston Post* and Carlos Byars of the *Houston Chronicle*. Great support came from State officials and the Legislature. Senators Buster Brown and Chet Brooks represent the bi-partisan support that has always been there.

What began as an attempt to focus on some of the significant events in the history of the Authority has turned into what it should be—a tribute to the men and women who conceived, nourished and developed it. Those who were named and dozens who were not are the important ingredients to a successful experiment. An old saying holds that one is known by his enemies as well as his friends. The Authority scores well on both counts—a few enemies and a host of friends.

The final and most sincere accolade must go to the employees, the men and women who have made it work and will continue to do so. These are people who take pride in their work and were dedicated in their jobs, well aware that what they were doing did represent a vital and important public service. Too many names to single out a few, but a fine collection of people. With the history and tradition of the Authority intact, the Board and General Manager Dick Brown, as well as future Boards and employees, will remain as a vital environmental force for decades and for the benefit of generations of people to come.



### FORMER BOARD MEMBERS



**Original Board Members, 1969** 

From left: Dr. W. Tom Arnold, William D. Bush, Arthur M. Alpert, Dr. F. Lamont Jennings, Gen. Royal Hatch, John Wildenthal, William McAlister, David Stewart, Thomas F. Jenkins. At far right is L. Jack Davis, first General Manager.



J. Kent Hackleman 1973-1975



S. I. Morris 1975-1979



Veta Winick 1975-1987



David B. Jenkins 1976-1982



Len Robbie 1979-1984



John G. Unbehagen 1981-1988



Robert M. Edwards 1982-1985



Clyde R. Bickham 1983-1987



Nicholas A. Gimber 1984-1987

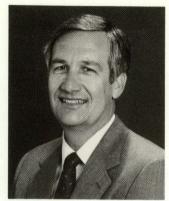


Charles T. Ladoulis, M.D. 1987-1989

# GCA STAFF MEMBERS



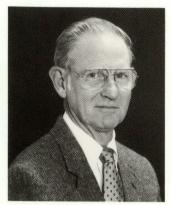
Dick Brown General Manager



Jerry Dunn Assistant General Manager



Paul Davis Manager - Municipal Programs

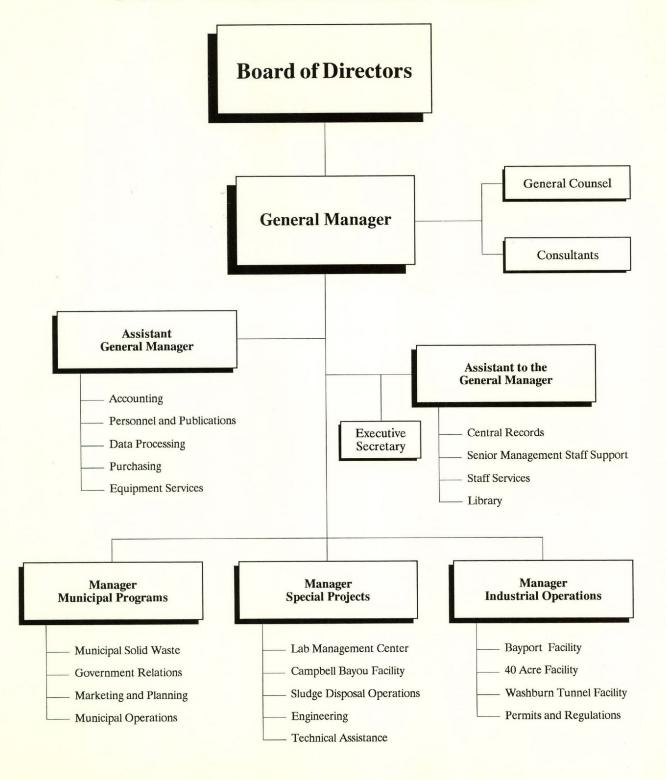


Joe Teller Manager - Special Projects



Charles Ganze Manager - Industrial Operations

#### GCA ORGANIZATION CHART



# TWENTY YEARS OF SERVICE



Present in 1973 for the contract signing for the 40 Acre Facility (L-R) were R. E. Butz, Monsanto Plant Manager; Charles Ganze and Joe Teller, GCWDA, and R. L. Yelton, Union Carbide Plant Manager.

Twenty years of service. Twenty years during which the Houston Ship Channel saw dramatic improvement... from a virtually lifeless waterway... to a body of water capable of supporting marine life all the way to the Turning Basin. And Gulf Coast Waste Disposal Authority had a lot to do with the change.

The concept for GCWDA was developed during Gov. John Connally's term of office. Gov. Preston Smith signed the actual legislation. Sen. Criss Cole introduced the bill and guided the Enabling Act through the 61st Legislature in 1969.

The GCWDA Board of Directors consists of nine members, three each from Harris, Galveston and Chambers Counties . . . those counties which adjoin Galveston Bay. From each county one member is appointed by the Governor, one by Commissioners Court and one by a consortium of the county's mayors.



More than \$900 million in pollution control bonds, approved by the GCWDA Board of Directors, has helped finance and develop waste treatment facilities.

The first Board Meeting was held in February of 1970. That same year voters rejected a local tax which would have put the Authority in the business of environmental enforcement. Enforcement was already being done at federal, state, county and municipal levels of government, so the Authority undertook to use its unique powers

as an "enabler" to help the cities and industries comply with standards and clean up Galveston Bay waters.

The Authority now has helped with development and financing of more than \$900 million of waste treatment facilities, about one-quarter of which are owned or operated by the Authority. This was done with no other tax support except small "seed money" grants from the State to get the Authority started during the first few years. The Authority is supported entirely by fees that it collects for the services it performs.

Both industries and cities have found the Authority helpful in several ways. Regionalization—combining wastes of industries and municipalities—has proved highly successful for several reasons. It really is cheaper to treat large volumes in combined facilities.

Compatibility tests are always made before industrial wastes are combined. Sometimes one industry's wastes will neutralize another's, making it unnecessary to continue purchasing chemicals to do the job. Similarly, municipal domestic sewage is sometimes more effectively disinfected by mixing with an acid waste from an industry, avoiding the expense and pollution that results from chlorination that is otherwise required for domestic sewage.

By operating on such a large scale, the Authority has been able to attract some of the best environmental engineers and specialists in the nation, employing talent which many of its customers could not afford on their own.



Discussing the contract signing between the GCWDA and the five participating industries are left to right Doug Toole, Texas Water Quality Board, Austin, Texas; Maurie Eastin, Environmental Protection Agency, Washington, D.C.; and Gen. Roy Hatch, Board Chairman of the GCWDA.



January 23, 1973, GCWDA signed the nation's first contract between a regional wastewater treatment authority and five participating industries. The agreement provided a significant boost to the concept of regional wastewater treatment. The five industries were Air Products and Chemicals, Atlantic Richfield, Champion International, Crown Central Petroleum and Petro-Tex Chemical. Representing Petro-Tex were J. P. Lockwood, Pat Dyer and G. B. Dunaway.

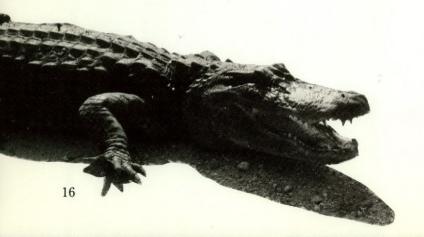


40 Acre receives first wastewater from Union Carbide. Final construction continues, 1974.

Smaller cities and municipal districts have found that by joining with the Authority, they can achieve the same economies and the same high quality of waste treatment. The City of Houston, itself, uses the Authority to implement its regional plans around its city limits. The Authority builds and operates in regions which are part in and part outside the City. After the area is developed sufficiently to be annexed, the Authority turns over the plant to the City at no cost other than to complete payment of the construction debt as agreed in advance.

The Authority also pioneers in developing innovations. These have included aeration plans for the Ship Channel, transfer stations for municipal solid wastes for Bellaire and Galveston, and waste-to-energy proposals which are expected to be important to the future of the Galveston Bay area.

In September of 1970, the Authority signed a letter of agreement with five industries to conduct compatibility tests to determine if their wastewaters could be treated in a single joint treatment system. Despite expert opinion that this idea would never work, in May of 1973 the Washburn Tunnel Facility became the first operating industrial treatment project for GCWDA. The young organization demonstrated to all concerned the efficiency of treatment and economy of scale which is realized through regional wastewater treatment.



While Washburn Tunnel plans were being formulated, GCWDA signed a contract with Union Carbide Corporation in Texas City. The 40 Acre Facility began operating in March, 1974, and by that time included Monsanto Co. as an additional participant and Smith Douglass/Borden Chemical, Inc. as a contract user.

To support construction of 40 Acre Facility, the Board authorized issuance of its first Pollution Control Bonds.

These early years saw rapid development, and in 1972 GCWDA was asked by Friendswood Development Corp. to operate the Bayport Industrial Wastewater Treatment Facility as a regional plant for industries in the Bayport Industrial Complex. The Authority took over operations in November, 1974. At that time 18 participants discharged wastewater to Bayport. The number has grown to 40...a tribute to the regional treatment concept.



American Facility.



Dave Turner, 40 Acre Lab.

Formal dedication ceremonies for Washburn Tunnel Facility were held in September, 1976, with then Texas Secretary of State Mark White in attendance, seen here with Jack Davis.



# MUNICIPAL, INDUSTRIAL REGIONAL TREATMENT



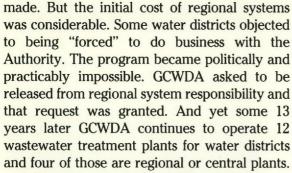
Washburn Tunnel Facility was referred to in a speech by Gov. Dolph Briscoe as a "unique experiment" that symbolizes the rebirth of the Houston Ship Channel. (1976)

In 1973 the Authority entered into an agreement to build, own and operate an advanced waste treatment facility for Amoco Oil and Chemical Plant in Texas City. The facility opened in June of 1975, playing a significant role in efforts to control industrial discharges to Galveston Bay.

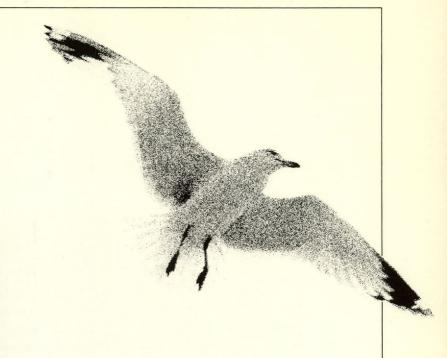
The first agreement to construct, own and operate a municipal waste treatment system was signed in 1973. Again, regionalization of treatment was a goal of the Authority. Municipal regionalization, however, has had its problems. In 1973 the Texas Water Quality Board requested that GCWDA implement a regional system in the Cypress Creek watershed, north of Houston. For three years a significant effort was



July 9, 1976, EPA Region VI Administrator John White addresses the La Marque city council meeting. GCWDA served as financing agent for the City of La Marque for one-fourth of the cost of a new \$1,264,000 waste treatment plant. Authority financing enabled the city to secure a 75% loan from the Environmental Protection Agency.



In late 1976 the Board authorized construction of a Mobile Sludge Dewatering Unit, an innovative machine designed to handle the increasing problem of sludge disposal. The MSDU is a conventional belt dewatering press installed in a trailer. Its most appealing feature is its mobility which enables it to service smaller plants or remote locations. MSDU No. 1 has been retired, but MSDU No. 2 continues to serve the sludge management needs of sewage treatment plants in the region.





The 30-foot long, eight-foot wide Mudcat Dredge was purchased in 1977. It enables GCWDA facilities to remove sludge from the bottom of treatment lagoons.



In 1978 the Mobile Sludge Dewatering Unit, which had been in development for about a year, became available providing a practical, cost effective method of removing sludge from sewage treatment plants. The MSDU provided an alternative to traditional sludge drying beds which are not very efficient in the high humidity of the Gulf Coast.

# CAMPBELL BAYOU FACILITY



In 1979 the Authority began operation of a Class I Landfill in Galveston County. Later dubbed the Campbell Bayou Facility, it is located on a 200-acre site near Texas City and was constructed to serve the needs of Marathon Company, Monsanto Company, Texas City Refining and Union Carbide Corp.



Original Disposal Cell work.



Campbell Bayou construction.

# **BAYPORT EXPANSION**





A major expansion at the Bayport Facility in 1979-80 added two clarifiers and a 14 million-gallon aeration basin. Floating aerators (top photo) are tethered to guideposts prior to filling the basin. Workers prepare for wall construction (bottom) on one of the clarifiers.

# LEGISLATIVE ACTION



GOVERNOR SIGNS Legislation Affecting GCA

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Senator A. R. "Babe" Schwartz sponsored Senate Bill No. 666 in 1979. The bill defined the Authority's powers to negotiate for facilities and systems which recover resources from solid waste and amended other sections of the original GCWDA Act dealing with terms of directors and appointment procedures, sale and purchase of property and general powers and duties. Present for the signing with Gov. Bill Clements were Jack Davis, John Wildenthal, Paul Davis and Sen. Schwartz.

#### BELTWAY FACILITY OPENS



The Beltway Central Wastewater Treatment Plant opened in 1980 after expansion by GCWDA to receive wastewater from Beltway Municipal Utility District, Westbelt MUD, Westcrest MUD and a part of the City of Houston. Beltway was later annexed by the City which now operates the plant.



Stablex Facility, London.



One of the first regional facilities in the area to provide tertiary treatment for sewage opened in September 1980. Adlene Harrison, Region VI EPA Administrator, commended both the City of Friendswood and GCWDA on the Blackhawk plant. She noted that only when officials from different communities were willing to work together will such a venture succeed. Present for the ceremony were (1-r) Veta Winick, GCWDA Board Member; former Friendswood Mayor Ralph Lowe; Emory Long, Director of Grants and Planning for the Texas Department of Water Resources; Ms. Harrison, and Jim Thornton, GCWDA.

# **BLACKHAWK FACILITY**



Blackhawk construction.



An operator from the 40 Acre Facility monitors the first sludge flow onto the 40 Acre Landfarm in Texas City. (1981)



Robert E. Layton, Jr., Director of Region VI of EPA (center) discusses the Blackhawk Plant with Jack Davis, left, and Dick Brown prior to a helicopter tour of GCWDA facilities. (1987)



Industrial solid waste needs in the Texas City area were answered in 1979 with the opening of the Campbell Bayou Facility, a Class 1 commercial landfill. The facility began operations early in '79 to serve Marathon Co., Monsanto Co., Texas City Refining and Union Carbide. Campbell Bayou is unique in at least two instances: 10 percent of the capacity is reserved to serve the public need (such as a spill of material on a highway), and it was one of the first such facilities to put in place a "perpetual care" fund, long before such funds were required by permit.

Innovations have not been limited to treatment processes and equipment. In 1982 GCWDA organized with the Keystone Center an effort to utilize community involvement to solve problems associated with siting hazardous waste treatment facilities. The Keystone Siting Process Group was composed of representatives from the community; industry; local, state and federal government; academia and the public at large. The public review concept which they developed has received wide attention.

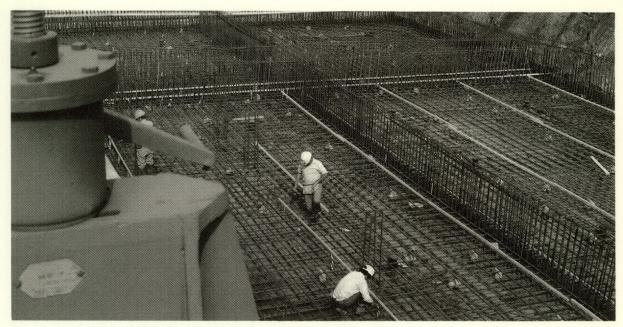
Solid waste management has been a major interest of the Authority from its earliest years. The first step in what may become a waste to energy, resource recovery project was taken in 1985 with the operation of the Galveston Transfer Station. Transfer stations consolidate refuse collected by neighborhood garbage trucks, compact the material into larger trucks and, therefore, provide for a more efficient transport of waste material. This transportation system would be used to feed a complex which would remove recyclable materials and incinerate remaining garbage to reproduce useable energy.

Solutions for special problems is a GCWDA specialty. Operators of portable toilets were faced with going out of business in 1985 or finding a suitable place to discharge their wastewater. The Authority built the Vince Bayou Facility to satisfy this need with discharge to the existing Washburn Tunnel Facility.



Wastewater at the American Facility began getting additional treatment with the start-up of a diffused air flotation unit. Screw pumps lift wastewater into the clariflotator. The new system went into use in 1981 to remove both floating and settleable materials prior to biological treatment.

# **ALIEF EXPANSION**



New construction at the Alief Regional Sewage Treatment Plant in 1983 expanded capacity from 1 million gallons per day to 4.0 mgd.

#### SOLID WASTE



Galveston Councilman John Sullivan passes the key for the Galveston Solid Waste Transfer Station to Board Member (and former Mayor) John Unbehagen in 1985.

#### **BLACKHAWK EXPANSION**



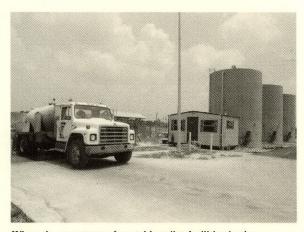
Phase II construction at the Blackhawk Regional Sewage Treatment Facility was completed in 1986 taking capacity from 3.25 mgd. to 9.25 mgd. Blackhawk serves the City of Friendswood, Municipal Utility District 55, MUD 142 (City of Houston) and CDC, Inc.

#### SLUDGE DEWATERING



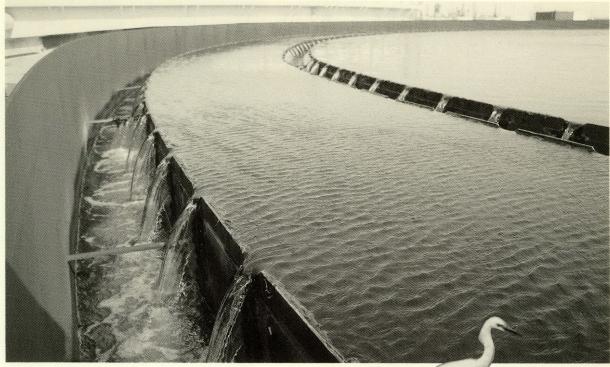
A new and improved Mobile Sludge Dewatering Unit became operational in 1984. The \$250,000 unit incorporated aluminum and stainless steel to minimize rust and corrosion. Even industrial sludges can be dewatered by the upgraded unit.

#### VINCE BAYOU FACILITY



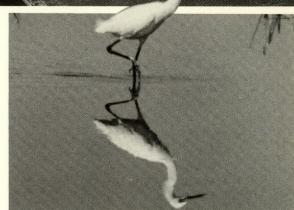
When the operators of portable toilet facilities in the Houston area needed a place to dispose of their waste, GCWDA was able in 1986 to provide the Vince Bayou Facility. Vacuum trucks discharge at Vince Bayou and wastes are sampled before being piped to the nearby Washburn Tunnel Facility for treatment.

#### IN CONCLUSION



A lot of changes occur in 20 years. Facilities add capacity, new customers come on-line, old customers change names, municipal locations double treatment capacity. Hundreds of visitors from this country, Brazil, Taiwan, Mexico, Czechoslovakia, Venice, Mainland China and many more have stopped by to see this idea of regional industrial wastewater treatment.

Some projects remain in the future: better methods for hazardous waste management, sludge disposal solutions, in-stream aeration for spot problems in waterways, reduction of discharges to the environment from non-point sources. GCWDA doesn't claim to have all the answers, but the pursuit of better solutions is never ending... an integral part of the mission of the Authority.



Bayport Facility.

The ability of this organization to fulfill that mission is reflected in its award-winning treatment facilities, in the honors bestowed on its staff, in the demonstrated dedication of GCWDA employees and in the continued leadership from its Board of Directors.

