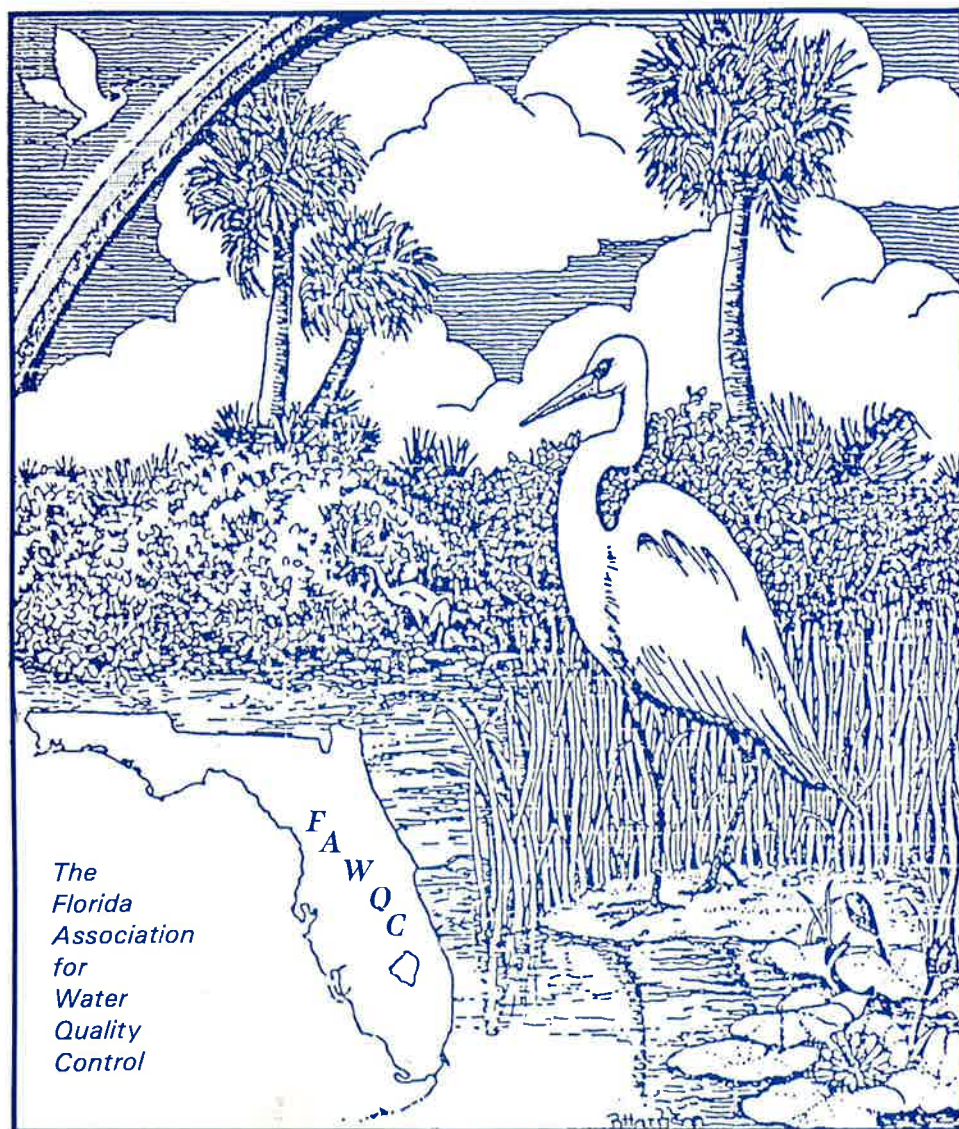


***Florida Association
for
Water Quality Control
13th Annual Meeting***



Naples, Florida

June 10, 11, 12, 1990

FLORIDA
ASSOCIATION
for
WATER
QUALITY
CONTROL

June 10, 1990

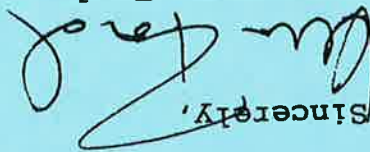
Dear Attendees:

Welcome to the 1990 Annual Conference. I believe you will find that the FAWQC has pulled together an outstanding technical program. There should be something on the program for everyone. We have many experts on the program giving excellent talks.

Once again, we have planned activities other than just technical programs. Please take part in the social and sporting activities. You should find them rewarding and relaxing.

I would like to personally thank each member of the planning committee for their hard work. This conference and even the association would not be a success without the hard work of many people.

Sincerely,



Kenneth V. Ford
Chairman

db

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Section I	Technical Program and Meeting Agenda
Section II	Abstracts and Resumes of Technical Speakers
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Section VII	Corporate Sponsors of FAWQC
Section VIII	Officers, Committee Chairmen and Resource People

I. TECHNICAL PROGRAM AND MEETING AGENDA

FAWQC PROGRAM 1990

Monday, June 11, 1990

7:30 - 8:15 Continental Breakfast
 7:30 - 10:30 Registration
 8:15 - 8:30 Welcome by FAWQC Chairman Ken Ford,
 Seminole Fertilizer Corporation

Session I - Groundwater

Moderator: Phil Davis, Schreuder & Davis, Inc.

1. 8:30 - 9:00 Ronald Potts, Dames & Moore, Inc., Florida
 Topic "PCE Contamination of Municipal
 Groundwater Supplies from Small Sources"
2. 9:00 - 9:30 Roy Silberstein, PB&J, Florida
 Topic "Water Supply Potential of the Lower
 Floridan Aquifer, Western Orange County,
 Florida"
3. 9:30 - 10:00 Juan Menendez, Florida HRS
 Topic "Gasoline Survey of Potable Water
 Wells in Dade County Florida"

10:00 - 10:30 BREAK

4. 10:30 - 11:00 Mike Coates, West Coast Regional Water
 Supply Auth. Topic "Water Quality
 Considerations in Operating the South
 Central Hillsborough Regional Well
 Field"

5. 11:00 - 11:30 Keith Smith, SFWMD
 Topic "MODMAN - Groundwater Withdrawal
 Optimization Module for the USGS MODFLOW
 Model"

6. 11:30 - 12:00 Dave Moore - SFWMD
 Topic "Saltwater Intrusion - Rumor or
 Reality, Excessive Groundwater
 Withdrawals--Fact or Fiction"

12:00 - 1:30 LUNCH and Keynote Speaker
 Mr. Wade Hopping, Esq.

Session II - Surface Water

Moderator: Peter Hubbell, Southwest Florida Water Management District

1. Lloyd H. Stebbins, P. E., Missimer & Associates, Inc., Florida Topic "New Federal Regs Stir a Storm of Protest"

2. Sean J. Hancock, Lemna Corp. Minnesota Topic "Advanced Treatment for Lagoons Using the Lemnaceae Technology"

3. Nilo Priede, P. E., Camp Dresser & McKee, Inc., Florida, Topic "Financing Stormwater Management in the 1990's and Beyond"

BREAK 3:30 - 4:00

4. Timothy J. Badger, Aquafite, Inc. N.A. Massachusetts Topic "A Biological Treatment Process for Florida Surface Water Restoration"

5. Vivek Kamath, FDER, Florida Topic "Permitting Requirements for Disposal of Reject Water from Membrane Process Water Treatment Plants in Florida"

COCKTAIL HOUR 6:00 - 7:00

BANQUET and ENTERTAINMENT by Gamble Rodgers 7:00 - Until

Session III - Expert Systems and Legal Update Tuesday, June 12, 1990

Moderator: Roger Sims, Holland & Knight

1. John Wiley, Monsanto, Florida Topic "Expert Systems in the 1990's - The Monsanto Mike Corcoran, Information Builders, Florida, Topic "Expert Systems" (Two parts - total time 1.5 hours)

BREAK 10:00 - 10:30

2. Bill Preston, Hopping, Boyd, Sams & Green, Florida, Topic "Groundwater Regulatory Update"

3. Tom Patka, Holland & Knight, Florida Topic "Surface Water Regulatory Update"

4. Doug Halsey, Smith & Halsey, Florida Topic "Wetlands Regulatory Update"

Concluding Statements 12:00 - 12:15

II. TECHNICAL SPEAKERS

FLORIDA ASSOCIATION FOR WATER QUALITY CONTROL

GUEST SPEAKERS

Mr. Vick Kamath, Supervisor
Dept. of Environmental Regulation
Industrial Wastewater Permitting Section
1900 South Congress Avenue, Suite A
West Palm Beach, FL 33406

Mr. Juan Menendez, P. E.
Dade County Department of
Public Health, District 11
1350 Northwest 14th Street
Miami, FL 33125

Mr. David Moore
Southwest Florida Water
Management District
2379 Broad Street
Brooksville, FL 34609-6899

Mr. Thomas Patka
Holland & Knight
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P. O. Box 288
Tampa, Florida 33601

Mr. Ronald Potts
Dames & Moore, Inc.
1211 Governor's Square Blvd., Suite 300
Tallahassee, FL 32301

Mr. William Preston
Hopping, Boyd, Green & Sams
P. O. Box 6526
Tallahassee, FL 32314

Mr. John Wiley
Monsanto Chemical Company
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Pensacola, FL 32575

Mr. Keith Smith
Southwest Florida Water
Management District
West Palm Beach, FL 33416-4680
Lloyd H. Stebbins, P.E. Vice President
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Mr. Roy Silberstein
Post, Buckley, Schuh, & Jernigan, Inc.
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Mr. Roger A. Sims
Holland & Knight
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Orlando, FL 32802

Mr. Timothy J. Badger, President
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15 Court Square, Suite 1150
Boston, MA 02108

Mr. Mike Coates
West Coast Regional Water
Supply Authority
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c/o Mr. John Wiley
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13911 North Dale Mabry Highway
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Miami, FL 33131

Mr. Sean J. Hancock
Lemna Corporation
1408 Northland Drive, Suite 107
Mendota Heights, MN 55120

Mr. Peter Hubbell
Executive Director
Southwest Florida Water
Management District
2379 Broad Street
Brooksville, FL 34609-6899

PCE CONTAMINATION OF MUNICIPAL GROUND WATER SUPPLIES

FROM SMALL SOURCES

By: Ronald R. Potts, P.E. and Jean L. Bossart, E.I.

Abstract

Municipalities in Florida are facing the dilemma of contamination to their ground water supplies from an organic compound used in small commercial establishments, particularly dry cleaners. The compound is tetrachloroethylene, a dense solvent which sinks through the aquifer, slowly dissolving into it. The contamination can take years to be discovered, frequently only after the sources are no longer in operation. In one instance a single dry cleaning establishment in Pensacola was identified as the probable source of the contamination to one of the city's primary water supply wells. An investigation revealed the magnitude of the contamination and effect of the local geology on plume movement. A filtration system was installed on the well. Remediation of the aquifer is now being considered. Total costs at this one well may approach one million dollars before remediation can be deemed complete.

Ronald R. Potts is a Project Engineer with Dames & Moore in their Tallahassee, Florida office. His technical expertise includes groundwater contamination investigations and hydrologic studies. He received his B.S. in geology from Olivet Nazarene College and his M.S. in geological engineering from the University of Missouri at Rolla. Ron is a registered Professional Engineer in Florida and a registered Professional Geologist in Arkansas.

WATER SUPPLY POTENTIAL OF THE LOWER FLORIDAN AQUIFER

WESTERN ORANGE COUNTY, FLORIDA

By: Roy Silberstein, Senior Hydrologist

and

Luther W. Hyde, Hydrogeology Department Manager

Abstract

A hydrogeologic evaluation was conducted to assess the feasibility of withdrawing 20.5 MGD from the Lower Floridan aquifer at a 160-acre site in western Orange County east of Lake Apopka. Development of the Lower Floridan was investigated as a potential means for minimizing water-level declines in the Upper Floridan aquifer and for providing added protection from potential contamination sources. Most large capacity supply wells in central Florida tap the Upper Floridan aquifer at depths ranging from 200 to 600 feet. Consequently, few data are available regarding aerial extent, water quality, and hydraulic properties of the Lower Floridan.

Data collected at the western Orange County test site are consistent with data published in the 1960s describing the Lower Floridan aquifer in north central Orange County. Recharge to the Lower Floridan aquifer from the Upper Floridan occurs very slowly due to the relatively small vertical hydraulic gradient. Water in the Lower Floridan is lower in hardness (100 mg/l) and total dissolved solids (115 mg/l) than water from the Upper Floridan.

Aquifer tests show that the Lower Floridan aquifer at the test site yields 4,000 gallons per minute with less than 6 feet of drawdown measured in the pumping well. Transmissivities average about 4,000,000 gallons per day per foot, an order of magnitude greater than typical values obtained for the Upper Floridan aquifer in central Florida and among the highest in Florida. Groundwater modeling studies show potential hydrologic impacts from pumping 20.5 MGD to be relatively small due to the highly transmissive properties of the Lower Floridan.

Mr. Silberstein, since joining Post, Buckley, Schuh & Jernigan in 1986, Roy has managed groundwater evaluation and development studies throughout central Florida. Prior to joining PBS&J, he worked for the Southwest Florida Water Management District for five years. Roy graduated from the University of Florida with a degree in environmental engineering, has taken graduate courses in hydrogeology at USF and is completing a masters degree at UCF.

GASOLINE SURVEY OF POTABLE WATER

WELLS IN DADE COUNTY, FLORIDA

By: Juan J. Menendez, P.E.
Environmental Engineering Consultant

Abstract

Beginning in 1987, the Dade County Public Health Unit of HRS began one of the largest groundwater surveys being conducted in the United States for the purpose of identifying gasoline contaminated areas. This survey is part of the State Underground Petroleum Environmental Response (SUPER) Act of Florida. The contamination is due to leaking underground tanks installed at thousands of gasoline service stations and other sites throughout the county. Over 1,100 potentially contaminated sites have been reported in Dade County.

More than 1,000 potable water wells have been sampled and gasoline has been detected in approximately 6% of the wells tested. The most frequently found compound has been Methyl Tertiary Butyl Ether (MTBE). Benzene, at levels above the Florida drinking water standard of 1.0 parts per billion, has also been detected in several wells. At these sites bottled water has been delivered to the residents while permanent remediation action is being effected.

Mr. Menendez has been Drinking Water Program Administrator for the HRS Dade County Public Health Unit since 1980. He graduated Cum Laude from the University of Miami with a Bachelor of Science in Civil Engineering. His professional activities include; Board of Directors, Association for Environmental Concerns; Engineering Section Chairman, Florida Public Health Association; Secretary, AWWA Ion Exchange Standards Committee.

WATER QUALITY CONSIDERATIONS IN OPERATING

THE SOUTH GENERAL HILLSBOROUGH REGIONAL WELLFIELD

By: Mike J. Coates, Project Hydrogeologist

Abstract

The South Central Hillsborough Regional Wellfield (SCHRWf) is located in the vicinity of Lithia, Hillsborough County, Florida. The wellfield is comprised of seventeen, 20-inch diameter production wells completed in the Upper Floridan Aquifer at an average depth of 900 feet below land surface. Wells are situated on one acre parcels and the entire wellfield area encompasses approximately 24 square miles. Data collected during drilling, testing and production from the SCHRWf indicates that water quality in the Floridan Aquifer varies considerably over the aerial extent of the wellfield. Aquifer parameters and water quality are being evaluated using monitor well data and a calibrated groundwater flow model to determine if a relationship exists between those parameters. This study is a component in the West Coast Regional Water Supply Authority's program to develop a comprehensive wellfield management program for the SCHRWf.

Mike J. Coates is currently a Project Hydrogeologist with the West Coast Regional Water Supply Authority. The Authority provides potable groundwater to over one million residents in the Tampa Bay region of Florida. His major responsibilities include development of hydrogeologic testing programs and wellfield design and optimization. Mike received a Bachelor of Science degree from Central Michigan University in 1979. He has worked as a geologist in the fields of petroleum geology and hydrogeology for the past 10 years. Mike is a registered professional geologist in the state of Florida.

MODMAN - A GROUND WATER WITHDRAWAL OPTIMIZATION MODULE

FOR THE USGS MODFLOW MODEL

By: Keith R. Smith, P.G., Senior Hydrogeologist

Abstract

MODMAN (MODflow MANAGEMENT) is a Fortran code developed by GeoTrans, Inc. for the South Florida Water Management District. It adds the capability to optimize ground water withdrawals to the USGS MODFLOW model. MODMAN maximizes or minimizes withdrawals rates, injection rates, and well locations according to a set of user defined constraints. Constraints are divided into three categories: hydrogeologic (head, head difference, drawdown, gradient), balance (pumping rates), and integer (selects a specified number of pumping wells from a set of potential locations). A typical objective may be to maximize the total pumping rate from a wellfield while maintaining a ground water gradient towards a contamination source. A variety of objectives and constraints are available to the user, allowing many types of ground water management issues to be analyzed.

Keith R. Smith is a Senior Hydrogeologist in the Water Supply Planning Division of the South Florida Water Management District. Currently he is the project manager for the development of water supply plans for the Kissimmee and West Central regions. Included in these projects is the development of regional three-dimensional ground water flow models and optimization of withdrawals under various drought scenarios. He is also managing a study to determine the Floridan Aquifer reverse osmosis potential in Palm Beach, Broward, Dade, and Monroe counties. He has a B.S. in Geology from the University of Wisconsin-Oshkosh, and an M.S. in Water Resources Management from the University of Wisconsin-Madison. He is a registered professional geologist in Florida.

SALT-WATER INTRUSION - RUMOR OR REALITY

EXCESSIVE GROUNDWATER WITHDRAWALS - FACT OR FICTION

By: David Moore, Director of Research Projects

Abstract

As part of SWFWMD's mission to protect and manage the water resources of west-central Florida, groundwater level and quality monitoring programs indicate the possibility of inland migration of saline waters in coastal aquifers. Preliminary findings from these monitoring programs suggests that groundwater use is approaching, if not exceeding, resource availability. Potential consequence to groundwater users will be discussed.

David L. Moore is the Director of the Resource Projects Department at the Southwest Florida Water Management District. His responsibilities include directing investigations of water resource availability, stormwater master drainage plans, agricultural conservation projects, and environmental assessments including stormwater research.

Mr. Moore received a Bachelor of Science Degree in Geology from the College of Charleston, Charleston, South Carolina, and a Master of Science Degree in Water Resources from the University of South Florida. Mr. Moore has over ten years of hydrologic and geophysical experience, including six years with the Southwest Florida Water Management District.

NEW FEDERAL REGS STIR A STORM OF PROTEST

By: Lloyd H. Stebbins, P.E.

Abstract

The USEPA proposed new stormwater rules on December 7, 1988. The proposed rule has sparked controversy because of the potentially broad and costly impact on countless manufacturing facilities and thousands of municipalities. The unusually long and tortuous 18 year rulemaking history is rapidly drawing to a close. A recent lawsuit filed by the NRDC resulted in a court order which directed the USEPA to finalize these regulations by July 20, 1990. Meanwhile, the proposed regulations have attracted more than 3000 pages of comments. Due to the far reaching nature of these regulations, it is important for people in both the public and private sectors to begin planning for implementation of the new regulations.

Initially, the new regulations will use the NPDES permit system as a tool for regulating point source discharges. For regulatory purposes, the definition of "point source" discharges of stormwater has been drafted so broadly that it includes virtually any stormwater discharge other than a swale. Initially, permits will be required by municipalities having separate storm sewer systems and for stormwater associated with industrial activity. The regulations also include a cascading schedule for the ultimate inclusion of other types of stormwater discharges.

Mr. Lloyd H. Stebbins, P.E. is Vice President and Regional Manager of Missimer and Associates, Inc., Jacksonville, Florida. He has twenty-four years engineering and management experience on power, chemical, pulp and paper, iron and steel, food processing, pharmaceutical, aerospace and other industrial projects. In addition, he also has extensive environmental consulting experience providing licensing, permitting, engineering and design services in air, water, odor, solid, toxic and hazardous waste including PCBs and asbestos.

Mr. Stebbins is a frequent public speaker and has published numerous papers on such wide ranging subjects as hazardous waste minimization, SARA Title III, "Emergency Planning and Community Right-to-Know Act," air quality permitting and stormwater regulation.

ADVANCED TREATMENT FOR LAGOONS USING THE LEMNAECIAE TECHNOLOGY

By: Sean J. Hancock and Lakshmi R. Buddhavarapu

Abstract

The City of De Ridder, Louisiana, utilizes an oxidation pond system to provide secondary wastewater treatment. The city must improve their wastewater treatment so as to meet new limits of 10/15/5 ppm (BOD/TSS/NH₃).

A demonstration Lemnaeciae treatment facility was installed and operated at De Ridder's wastewater treatment site since September, 1988. The Lemnaeciae System, a patented natural biological technology, makes use of floating aquatic plants which polish BOD and TSS by nutrient uptake and inhibit algal growth. This pilot demonstration simulates the proposed full scale retrofit of existing Lagoons #2 and #3 to achieve the above limits. Hydraulic detention time within the demonstration facility precisely matched that of City Lagoons #2 and #3 at design-year flow.

The pilot program consisted of installing two Lemna ponds, inoculation with Lemna plants and management of the biomass to optimize removal of BOD/TSS and NH₃.

With a constant flow-through system, the Lemna cells reached discharge limits within a month after start-up and achieved BOD/TSS as low as 1/1 ppm with NH₃ below 0.1 ppm. Average BOD/TSS during this period was 3/11 ppm with NH₃ concentration of 1.2 ppm.

Four weeks after the Lemna System became operational, all three effluent parameters of concern were met. To date, the effluent from the demonstration facility has maintained superior water quality than required by the U.S. EPA and LA Department of Environmental Quality. The main portion of the study occurred during the colder winter months, normally known for inhibiting plant growth. Even during this time, the Lemna System provided excellent treatment. Seasonal reliability is excellent, growth of the Lemna plants continued throughout the winter.

The Lemna Treatment System provides a convenient, effective method for upgrading existing wastewater stabilization lagoons to advanced wastewater treatment facilities.

FINANCING STORMWATER MANAGEMENT

IN THE 1990'S AND BEYOND

By: Nilo Priede, P.E.

Abstract

An overview of development and implementation of stormwater management utilities with special emphasis on financial considerations.

Mr. Nilo Priede, P.E., received his B.S. (with honors) in civil engineering and a M.S. in environmental engineering from the University of Florida. He has over 30 years of experience as a civil/environmental engineer, having worked for the U.S. Corps of Engineers and U.S. Environmental Protection Agency. Mr. Priede has developed and implemented twenty-six stormwater management utilities. Currently he is working with Camp Dresser & McKee, Inc. as a senior technical consultant.

A BIOLOGICAL TREATMENT PROCESS FOR
FLORIDA SURFACE WATER RESTORATION

By: Timothy J. Badger

Abstract

Florida has an abundance of surface water that supports recreational activities and vast communities of fish and wildlife. The most recent Florida 305(b) report indicates that the pollution sources responsible for surface water quality problems include phosphate mining and fertilizer production, domestic wastes, agricultural runoff, runoff from dairy and hog farms, and urban runoff.

Point source and nonpoint source pollution parameters of BOD, COD, suspended solids, nitrates/phosphates, ammonia as N, and PH are all efficiently and effectively handled by a biological treatment process.

This process is a new approach to the problem of waste water treatment and surface water rehabilitation. The biological treatment method extends the retention time of introduced atmospheric air, thus providing a progressive transformation of large volumes of anaerobic waters into permanent oxygen rich and equilibrated aerobic ecosystem.

The process was developed in 1974 in Antwerp, Belgium. The major advantages of the system include:

- o Simplicity and economy of construction and equipment;
- o Direct aerobic treatment of suspended organic solids;
- o Allows a direct and uninterrupted aeration of great masses of water;
- o No sludge accumulation on the river bed;
- o Water which has been treated can be used for agricultural purposes without any danger;
- o Oxygen rich effluent;
- o No erosion from operation allowing direct application into brooks, rivers, canals and lakes without concrete protection for the river bed or banks.

Biological treatment systems have been installed by Aqualite, Inc. and are currently in use in West Germany, Belgium, Hungary, Spain and Egypt.

Timothy J. Badger is director and President of Aquafife, Inc., N.A. He received his Doctorate from Boston University in Education/Management in 1979 and his Masters degree from Southern Connecticut State University in Resource Management in 1976. Timothy J. Badger has over 15 years of business experience in environmental resource management and quality control, including management, marketing and field work. Environmental studies and sciences at the undergraduate and graduate levels, provided a foundation upon which Timothy J. Badger's practical and business experiences were built. Leaving his position as Assistant Professor to work in industry, Timothy J. Badger worked for a major insurance and engineering concern in their environmental risk control services division. He has held the following environmentally related business positions: Sales Manager for Stablax, Inc.; Director of Sales for Clean Harbors, Inc.; National Sales Manager of the Environmental Risk Control Services Division of Hartford Steam Boiler Inspection and Insurance Company.

PERMITTING REQUIREMENTS FOR DISPOSAL OF REJECT WATER
FROM MEMBRANE PROCESS WATER TREATMENT PLANTS
IN FLORIDA

By: Vivek Kamath

Abstract

Reject water from a membrane process water treatment plant is presently classified as industrial waste by the Florida Department of Environmental Regulation (DER). Prior to discharge of the concentrate to surface or ground waters, a permit must be obtained by submitting an application to the appropriate DER District office.

Several disposal alternatives are available to the owner or operator of the water treatment plant and the level of post-treatment required depends on the quality and classification of the receiving waters. Some of the disposal methods available include discharge to brackish or saline surface waters, discharge to percolation ponds underlain by aquifers containing 1500 mg/l or higher total dissolved solids, deep injection well or mixing with reclaimed water from a domestic wastewater treatment plant. Since most of the water treatment plants are located along coastal areas, the most logical method of disposal of the concentrate should be to brackish or saline surface waters unless these waters are classified as Outstanding Florida Waters (OFW). These waters receive the highest degree of protection under Florida Statutes and Department regulations.

This paper discusses several alternatives available for treatment and disposal of reject water from membrane process water treatment plants and the applicable DER regulations.

Vivek Kamath, P.E., is supervisor for the Industrial Waste/Dairy Permitting Section of the Florida Department of Environmental Regulation in West Palm Beach, Florida.

EXPERT SYSTEMS IN THE 1990'S - THE MONSANTO EXPERIENCE

By: Mike Corcoran and John G. Wiley

Overview

Mr. Mike Corcoran will present a general overview of Expert Systems or Artificial Intelligence Systems. This will include a historical perspective, limitations, unique characteristics, application areas and examples. This discussion will focus on how Expert Systems will impact the regulatory arena in the 1990's and beyond.

Monsanto Experience

John Wiley will present the "Monsanto Experience." This example of an Expert System in use is called the Environmental Advisor.

"Environmental Advisor" is an expert system that was written to provide plant personnel with timely access to current information on environmental issues and regulations. The primary purpose of the Advisor is to assist the user with federal and state chemical spill and release reporting requirements. The Advisor also contains specific information on all plant air permits, discharge permits, testing requirements, reporting deadlines and waste disposal.

The key assumption in designing this system was that the users were not going to be computer specialists. The user interfaces were developed in a yes/no or a menu selection format. Data entry screens are simple and reasonably fault tolerant. The language is phrased for the lay person and on screen explanations are used extensively.

The Advisor has been on-line and in use at the Monsanto Pensacola plant since early 1988. The spill and release reporting section of this system is also available in a generic format so that it may be easily cloned for use at other corporate locations.

The Advisor was developed with the Level 5 shell. It is delivered on the VAX network and in a stand alone, run only version for IBM and IBM-compatible PCs using the Level 5 production compiler.

Mike Corcoran has been with Information Builders, Inc. for four years in their New York office. He has extensive data processing experience as a FOCUS and COBOL programmer. He has been working with LEVEL 5 Expert Systems for over two years.

John G. Wiley is the Environmental and Industrial Hygiene Superintendent at Monsanto Chemical Company's plant in Pensacola. The Pensacola plant is Monsanto's largest plant and the world's largest wholly unified nylon facility. John has held various assignments in manufacturing and in the support services areas during his eighteen years with the company. John received a B.S. degree in Industrial Engineering from Auburn University and completed course work toward his masters in System Management from F.I.T. in Melbourne. Prior to joining Monsanto, John was a system Engineer with Harris Corporation in Melbourne. John has been responsible for Monsanto's environmental program for the past eight years and has been recognized by his corporation for his proactive approach with the regulated community.

GROUNDWATER REGULATORY UPDATE

By: William D. Preston, Esq.

Abstract

Ground protection is a common thread that has been woven through Florida Department of Regulation (DER) developing regulatory programs on solid waste management and petroleum and hazardous substance storage tanks. Implementation of these key programs and an increase in enforcement actions mandating compliance with these substantive requirements of law and groundwater regulations will occupy much of the 1990s.

Developing trends and insights into the likely groundwater regulatory climate surrounding these areas of law and rules as DER enters its third decade can be discerned from an analysis of the following:

- o Key groundwater-related provisions of the host of new solid waste management rules resulting from enactment of Florida's landmark 1988 Solid Waste Management Act.
- o The 1989 overhaul of DER's petroleum contamination cleanup (How clean is clean?) rules and the precedential relationship of these rule provisions to sites involving groundwater contamination other than from petroleum sources.
- o Recent litigation and cases involving groundwater "free-from", wellfield protection (G-1), and other relevant issues.

Events of the last few years point towards further refinement of key DER groundwater-related rules and continued litigation in both administrative and civil forums resulting from a continually increasing focus on the protection and enhancement of the groundwater resource. It is this somewhat predictable component of the 1990 groundwater regulatory agenda that is proposed for highlight and analysis in this presentation.

William D. Preston graduated from Rochester Institute of Technology, Rochester, New York, with a B.S. in Biological Sciences in 1969 and took his law degree from Florida State University in 1975. He was Staff Director of the Senate Natural Resources and Conservation Committee of the Florida Legislature from 1976-79, and is presently a partner in the Tallahassee law firm of Hopping Boyd Green and Sams. He frequently writes and lectures on environmental law topics and has been an active participant in all Florida Department of Environmental Regulation groundwater, solid/hazardous waste, storage tank rulemaking and legislative matters and activities since 1975.

SURFACE WATER REGULATORY UPDATE

By: Thomas J. Patka

Abstract

This section updates regulatory developments in the area of surface water with specific attention to the controversy surrounding the Southwest Florida Water Management District's adoption of the MSSW rule for non-phosphate miners, together with comments on developments in outstanding Florida waters and the new federal stormwater rules.

Thomas J. Patka, J.D., Ph.D., received his B.A. in microbiology and chemistry in 1967 from the University of Minnesota, his MPA and Ph.D. in 1973 from Maxwell School, Syracuse University and his J.D. in 1985 from the Catholic University of America.

Tom was an Assistant Professor in the Department of Public Administration at Florida International University in Miami before moving to the Environmental Protection Agency (Washington, D.C) on a post doctoral fellowship in 1979. Tom is a frequent lecturer on environmental issues across the state and a regular columnist for Florida Environments. He also has authored a number of articles and papers on government and public policy, including a co-authored paper entitled "Managing POTW Performance" presented to the 1981 Annual conference of the Water Pollution Control Federation. He is a member of the Environmental and Land Use Law Section of the Florida Bar and served on the Solid and Hazardous Waste Committee of the Natural Resources Law Section of the American Bar Association.

SURFACE WATER REGULATORY UPDATE

By: Thomas J. Patka

Abstract

This section updates regulatory developments in the area of surface water with specific attention to the controversy surrounding the Southwest Florida Water Management District's adoption of the MSSW rule for non-phosphate miners, together with comments on developments in outstanding Florida waters and the new federal stormwater rules.

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WETLANDS REGULATORY UPDATE

By: Mr. Douglas M. Halsey, P.A.,
Smith and Halsey, Miami, Florida

Abstract

A review and update on Federal and state regulation of activities in wetlands and including and analyzes of EPA's "no net loss" policy and recent key Federal and state decisions.

Mr. Douglas M. Halsey received his B.A. degree from Columbia University and J.D. from the University of Miami. He is a practicing attorney specializing in environmental, landuse, administrative and governmental law. He is a member of the American Bar Association, Florida Bar, and Dade County Bar Association and is a frequent speaker throughout Florida concerning topical environmental legal issues. Mr. Halsey is an expert concerning legal issues associated with dredge and fill permitting, environmental audits, wetland mitigation and jurisdiction, hazardous waste, environmental audits, and landuse and concurrency.

III. KEYNOTE SPEAKER AND MODERATORS

FLORIDA ASSOCIATION FOR WATER QUALITY CONTROL

KEY NOTE SPEAKER

MR. WADE HOPPING, ESQ.
Hopping, Boyd, Sams & Green
P. O. Box 6526
Tallahassee, Florida 32314

GROUNDWATER MODERATOR

MR. PHIL DAVIS
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SURFACE WATER MODERATOR

MR. PETER HUBBEL
Southwest Florida Water
Management District
2379 Broad Street
Brooksville, Florida 34609-6899

LEGAL MODERATOR

MR. ROGER SIMS, ESQ.
Holland & Knight
P. O. Drawer BW
Lakeland, Florida 33802

IV. SHORT COURSE

EFFLUENT TOXICITY TESTING

By: William Peltier

Abstract

Effluent/Aquatic Toxicity Testing and Monitoring - a method used to evaluate acute and chronic testing. Discussions will be given on how to evaluate laboratories and consultants. Guidelines will be set up to determine the cost of testing for toxicity. Comparisons will be made on chemical and biological data, toxicity reduction, test failures and methods of evaluating quality of effluent.

William Peltier, received a B.S. in 1964 from Northern Michigan University and in 1966 received a M.S. from Michigan State University. From 1966 to 1971, was employed by the Tennessee Valley Authority as an aquatic biologist. Joined the EPA in 1971 as a aquatic biologist in Region IV. Was responsible for developing Region IVS Effluent Toxicity Testing Program. Since 1976, has been involved in the development and publication of EPAs Effluent Toxicity Testing Manuals. Is presently EPAs National Expert on Effluent Toxicity Testing.

V. EXPO

A special thanks to the continued interest and support of our vendors exhibiting in the Expo. The vendors are very instrumental in the success of our Annual Conference.

Our exhibitors this year are represented by a variety of environmental firms specializing in laboratory services, consulting, instrumentation, and remediation.

Vendors are available throughout the Conference to present and discuss each of their areas of expertise. Please take a minute during the Conference to visit with each of the vendors.

Vendors, our thanks to you again. Your support is greatly appreciated by the Directors, Officers, and members of the Florida Association of Water Quality Control.

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VI. SCIENCE FAIR AWARDS

SCIENCE FAIR AWARDS

The 35th Annual State Science and Engineering Fair of Florida was held on April 19-20 in St. Petersburg. Once again the FAWQC participated and was represented by two members who reviewed hundreds of projects and spoke with dozens of students. As in past years, the FAWQC awarded cash prizes to two students who demonstrated outstanding effort in water quality research. A \$500.00 Senior Level cash award and a \$250.00 Junior Level award were presented. As in the several preceding years, these were the largest cash awards presented by any organization. In addition to the cash award, the Senior Winner, Mr. Benjamin McFarland, and his family have been invited as our guests to the Annual Conference.

SENIOR WINNER

Benjamin James McFarland
Palm Bay High School
Melbourne, Florida

JUNIOR WINNER

Alyssa A. Bellows
St. Brendan School
Ormond Beach, FL

These awards would not have been possible without the support of the Florida Association for Water Quality Control Corporate Sponsors.

ABSTRACT

A Study of Organic Rich Sediment: Year Two
Benjamin James McFarland

This section of the study has been focused on the elements found in the sediment of a particular tributary of Turkey Creek, FL, one of many sources of organic-rich sediment. This tributary cuts through the usage area of an electronics plant as well as a sewage treatment plant, both former polluters who had officially discontinued dumping over two years ago. Before that, measurements of some pollutants had been taken in that tributary. These past findings were compared to this year's findings. It was hypothesized that the very top few centimeters of the sediments would show little chemical contamination.

Sediment was collected using a core sampler. The thirty samples were then prepared for analysis through acid digestion. Data were obtained using a Perkin-Elmer 4000 Flame Atomic Absorption Spectrophotometer to analyze the sediment-acid solutions for Fe, Cu, Cr, Mn, Pb, and Zn. A computer program was written to process the data along the linear absorbance-ppm relation in BASIC. Very low levels of Cr and Pb have been found, and high levels of Cu and Zn were detected. Low levels of Fe and Mn, usually abundant in soils, give this sediment a very unique and unexpected profile.

Three main conclusions have been drawn concerning the tributary:

1. The movement of contaminants through the system is very slow.
2. It is unlikely that Harris Corp. is still a point source for pollutants.
3. There is a general, non-point source for Zn and Cu in the area.

Glascock, C.J. (1987). Trace Metal Geochemistry of Sediment from Turkey Creek, FL. Master's Thesis for F.I.T.

Kouadio, I. and J.H. Treffy. (1987). Sediment Trace Metal Contamination in the Ivory Coast, West Africa. Water, Air, and Soil Pollution, 32, 145-154.

Zediker, L.Z. (1986). Determination of Cr, Cu, and Zn in the Sediments of Canals Receiving Electronic Component Industry Effluent. Master's Thesis for F.I.T.

EFFECTS OF STORM SEWER WATER POLLUTION ON THE HALIFAX RIVER
Alyssa A. Bellows
St. Brendan School

ABSTRACT

My reason for doing this project was to find out what some of the major pollutants are that flow into the Halifax River through storm sewers. My hypothesis was that not only visible litter is found, but also chemical and biological wastes.

I measured out a grid with PVC pipes as markers to be used as reference points. To find filterable solids I used a wire mesh to catch the debris during a rainfall. I also took samples at 10 minutes, 20 minutes, and 2 hours - straining them through filters. To find out what chemical wastes are polluting the water I used the grid as reference points to take readings for temperature, salinity, and conductivity. I also took nitrate, nitrite, and phosphate tests using the Hach Test. Biological wastes were the fecal coliforms. I took samples of water at certain points and certain times and performed tests on them at Briley Wild and Associates.

I found that the filterable solids washed out mostly at 10 minutes, then decreased at 20 minutes and two hours. The nitrates and nitrites washed out mostly in 20 minutes and the phosphates took 10 minutes to flush out. The fecal coliforms washed out within 10 minutes.

Basically, I found out that some of the major pollutants that enter the Halifax River through a storm sewer are visible wastes, chemical wastes, and biological wastes. Heavy rains cause more damage and have greater impact on the environment than steady, gentle, soaking rains.

BIBLIOGRAPHY

World Book Encyclopedia, Vol. 6E, pp. 332-333; Vol 14 N-0, pg. 429; Vol. 15P, pg. 400; Vol. 21W-Z, pg. 137.

Dinky Dock Beach Rehabilitation for Winter Park, Florida. James Robert Sloane/Project Mgr., Feb. 1989, 300 pgs.

Interview: Jr. R. Sloane/Storm Water Engineer-Briley Wild, & Associates.

Interview: Dick Casset & Lab Personnel-Briley, Wild, & Associates.

1756 Dwyer Place NE
Palm Bay, FL 32907
April 24, 1990

Mr. Jeffrey F. Spence

Assistant Director

Polk County Water Resources Division

Dear Mr. Spence:

I am the recipient of the Senior Section Florida Association for Water Quality Control Award from the Florida State Science Fair. Thank you very much for this! I am now considering continuing my project in the area of water analysts, thanks largely to your award. I am looking forward to the interesting and unique experience of the FAWQC Annual Conference. Please send me some more information on this subject so that I may begin to plan. Once again, I would like to express my deepest thanks for your gift.

Yours sincerely,

Benjamin McFarland

APR 27 1990

VII. CORPORATE SPONSORS

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