

# Woodward-Clyde Consultants

201 Willowbrook Boulevard  
P.O. Box 290  
Wayne, NJ 07470  
201 785-0700  
212 926-2878  
Telex 133-541

10 October 1986

United States Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

Re: License Number 29-19765-01

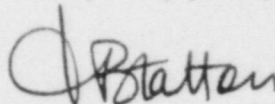
Dear Sirs:

We would like to amend our license number 29-19765-01 on the following:

- Item 12 - We would like to add the name of Thomas Kwader. Mr. Kwader's qualifications, training and certificate of training are attached.
- Item 18 - We would like to delete the name of Brian Healy and add the name of Thomas Kwader as Radiation Protection Officer. Mr. Kwader has received instruction and training in a 4-day course given by Gulf Nuclear Incorporated in Houston on Radiation Safety in Oil Well Logging. Mr. Kwader's qualifications, certificate and training are attached.

We have attached the required amendment fee of \$170.00 along with our request. Should you require any additional information, please do not hesitate to contact me.

Very truly yours,



C. Thomas Statton,  
Vice-President

CTS:cd  
Enclosures

8703300135 861118  
REG1 LIC30  
29-19765-01 PDR

Log	08.14
Remitter	
Check No.	000682
Amount	\$120
Fee Category	SA
Type of Fee	Amendment
Date Check Rec'd.	10/28/86
Date Completed	10/28/86
By:	A. Kimberley

106284

ML10

OCT 14 1986

Consulting Engineers, Geologists  
and Environmental Scientists

Offices in Other Principal Cities

"OFFICIAL RECORD COPY"

THOMAS KWADER

hydrogeology  
borehole geophysics  
water resources management  
project management

#### EDUCATION

Florida State University: Ph.D., Geology, 1982  
Florida State University: M.S., Geology, 1979  
Florida State University: B.S., Geology, 1975

#### REGISTRATION

Registered Professional Geologist in Georgia (#582)  
Certified Water Well Contractor, NWWA (#2621)  
Certified Well Log Analyst, SPWLA (#5851)  
Licensed Water Well Contractor, Florida (#2444)

#### PROFESSIONAL HISTORY

Woodward-Clyde Consultants, Tallahassee, Florida, Senior Project Manager for Florida, 1984-date  
Northwest Florida Water Management District, Tallahassee, Florida, Senior Hydrogeologist, 1982-1984; Associate Hydrogeologist; 1979-1982; Assistant Hydrogeologist, 1976-1979  
KWM Water Resources, Inc., Tallahassee, Florida, President, Senior Hydrogeologist, 1980-1984.

#### REPRESENTATIVE EXPERIENCE

Since becoming officer manager of the Tallahassee, Florida, Woodward-Clyde office, Dr. Kwader has managed numerous types of hazardous waste projects (up to level "B" safety protection) including the first Federally funded (EPA) superfund project in Florida. Other groundwater related projects include design and implementation of groundwater monitoring plans, remedial investigations involving a wide variety of contaminants, preparation of environmental impact statements and assessing the impact of heavy groundwater withdrawals upon local groundwater systems. Dr. Kwader has worked extensively as a hydrogeologist in the Southeastern Coastal Plain of the United States. Many of his projects required a thorough understanding of the hydrologic characteristics of the Tertiary carbonates and unconsolidated formations comprising the freshwater flow system. Methods and techniques commonly employed included borehole and surface geophysics, continuous wireline coring, air, mud, cable tool and auger drilling, aquifer testing and groundwater modeling. Typical projects often included site-specific contamination studies, design and review of holding ponds and solid waste landfills, well and well field design, and regional groundwater availability studies.



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During his work relating to water management he combined his knowledge of hydrogeology and geophysics to develop state-of-the art quantitative log interpretation techniques for borehole geophysical logs run in shallow "freshwater environments." Much of his research involved the actual comparison of continuous cores with complete suites of geophysical logs for determining lithology, formation water quality and estimating permeability. Many of the techniques developed from his research have proven to be very effective and are currently being used in a quantitative manner by many hydrogeologists in waste management. He currently has logged over 600 wells and has supervised the logging of more than 1000 wells drilled in a wide range of geologic environments.

In the course of his work, Dr. Kwader has had contacts with regulatory agencies and other groups concerned with groundwater and environment issues in Florida, e.g., the Groundwater Section of the Florida Department of Environmental Regulation. With them, he has discussed, consulted or taught workshops on geophysical logging, sanitary landfills, hazardous waste sites, and well construction standards. He has been instrumental in the formulation of rules and contractor licensing for the State of Florida. He has also served as a member of the team writing the Underground Injection Control (UIC) rules for Florida.

Dr. Kwader has appeared as expert witness on several occasions on the siting of sanitary landfills, and also on groundwater availability and the impact of heavy irrigation use of groundwater.

During the last five years he has formally presented more than twenty-five papers at technical conferences including, at the national level, American Society of Civil Engineers, National Water Well Association and Geological Society of America (Chairman of Hydrogeology section). He has appeared as a guest lecturer for graduate level geology or hydrogeology courses and has also taught two day classes on geophysical logging of injection wells for EPA Regions IV and V personnel.

#### AFFILIATIONS

Southeastern Geological Society (Sec./Treas. 1980)  
National Water Well Association  
Florida Water Well Association (Board of Directors 1983-1984)  
American Water Resources Association  
Society of Professional Well Log Analysts

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PUBLICATIONS

Resistivity-Porosity Cross Plots for Determining In Situ Formation Water Quality, Proceedings, NWWA, Geophysical Symposium, Ft. Worth, TX, 19 pp., 1985.

Terrain Conductivity as a Tool for Delineating Hydrocarbon Plumes in a Shallow Aquifer (with R. Valentine), Proceedings, NWWA Geophysical Symposium, Ft. Worth, TX, 12 pp., 1985.

Hydrology of the Southern Parts of Okaloosa and Walton Counties, Northwest Florida, with Special Emphasis on the Upper Limestone of the Floridan Aquifer, U.S. Geological Survey, Water-Resources Investigations Report 84-4305. Prepared in cooperation with the Northwest Florida Water Management District.

Hydrogeology of the Sand-and-Gravel Aquifer, Southern Escambia County, Florida. Northwest Florida Water Management District, in press.

Determining Formation Water Quality from Geophysical Logs. Proceedings, NWWA Geophysical Symposium, San Antonio, Texas, in press, 1984.

Estimating Aquifer Permeability from the Formation Resistivity Factor. Proceedings, NWWA Geophysical Symposium, San Antonio, Texas, in press, 1984.

Estimating Water Quality from Porosity-Resistivity Cross-Plots. Proceedings, NWWA Technical Session, St. Louis, 14 pp., 1983.

Application of Geophysics to Water Resources Investigations. Seventh Annual Conference on Water Management in Florida, Summary. Northwest Florida Water Management District, 1983.

Interpretation of Borehole Geophysical Logs and Their Application to Water Resource Investigations. Unpublished Ph.D. Dissertation, Florida State University Geology Department, 335 pp., 1982.

Water Resources of Southern Okaloosa and Walton Counties (with D. Barr and A. Maristany). Northwest Florida Water Management District, Water Resources Assessment, 81-1, 132 pp., 1981.

Groundwater Resources of the Lower Dougherty Plain, Southwest Georgia. In Studies of the Hydrogeology of the Southeastern United States, Georgia Southwestern College, Special Publ., No. 1, 10 pp., 1981.

Groundwater Resources of the Dougherty Plain, Southwest Georgia (with



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J. Wagner), for Decatur County, 110 pp., 1980.

Groundwater Flow in a Limestone Aquifer System of Northwest Florida Using U234/U238 Disequilibrium Analysis. Unpublished Masters' Thesis, Florida State University Geology Dept., 112 pp., 1979.

Top of the Floridan Aquifer-Northwest Florida, Florida Bureau of Geology, Map Series No. 86., 1978.

The State of Florida  
Department of Environmental Regulation

Has Determined That

THOMAS KNADER

Is Qualified As A

Water Well Contractor

PURSUANT TO CHAPTER 373, FLORIDA STATUTES

In The

State of Florida

And Hereby Issues

License Number

2444

Issued By The Department of Environmental Regulation in Tallahassee  
This 27th Day Of April A.D. 1984

*Robert J. Smith*  
SECRETARY  
Department of Environmental Regulation  
*Robert J. Smith*  
DIRECTOR  
Division of Environmental Permitting

STATE OF FLORIDA	
WATER WELL CONTRACTOR LICENSE	
Issued to	
THOMAS KNADER	
By	
DEPARTMENT OF FLORIDA WATER MANAGEMENT DISTRICT	
License No. 2444	Expires July 1, 1985
<i>James W. Carter</i>	
DISTRICT CERTIFICATION OFFICER	

**Verificare**  
The signature authenticates the  
signature of the subject and certifies that the signature is genuine.

**THOMAS KWADER**  
for subject's signature or instruction and handling a matter under the signature

9/28/77  
Date

Frank M. M. M.  
Signature

W. H. M. M.  
Signature



03019211  
03111  
3/47

BETWEEN: William O. Miller, Chief  
License Fee Management Branch  
Office of Administration

John E. Glenn, Chief  
Nuclear Materials Section B  
Division of Engineering and  
Technical Programs

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED

Applicant/Licensee: Woodward-Clyde Consultants

Application Dated: 10-10-86

Control No.: 106284

License No.: 29-19765-01

2. FEE ATTACHED

Amount: \$170

Check No.: 000682

3. COMMENTS

Signed SLJ

Date 10-20-86

B. LICENSE FEE MANAGEMENT BRANCH

1. Fee Category and Amount: 5A \$170

2. Correct Fee Paid. Application may be processed for:

Amendment ✓

Renewal       

License       

Signed S. Kimberley

Date 10/28/86