



**Hygeia Laboratories**

***Statement of Qualifications***

*Revised December 10, 2008*

**Hygeia Laboratories Inc.  
3626 Westchase Drive  
Houston, TX 77042  
Phone: (713) 343-4483  
Fax: (713) 977-1963**

**[www.hygeialabsinc.com](http://www.hygeialabsinc.com)**

## **I. INTRODUCTION**

Hygeia Laboratories Inc. (Hygeia), founded in 2001, is a full service environmental microbiology and entomology testing laboratory located in Houston, Texas. Hygeia's facilities occupy nearly 3,000 square feet of laboratory and administrative space with designated areas for sample receiving, preparation, analysis, and storage.

Hygeia infuses each project with a vast amount of experience in the analysis of environmental samples. Hygeia's protocol emanates from the philosophy that each and every sample must be carefully and cost-effectively analyzed. To ensure the quality of our analytical results, Hygeia has developed and implemented comprehensive analytical techniques, quality assurance procedures, report formats, and sample archiving systems. Clients rely on Hygeia for accurate results and prompt turnaround times.

### **Accreditation, Certifications, and Participation in Proficiency Testing Programs**

- AIHA Environmental Microbiology Proficiency Testing (EMPAT) Program – Fungi since 2001
- AIHA Environmental Microbiology Laboratory Accreditation Certificate – Fungal Direct Exam and Culture since 2005
- Texas Department of State Health Services Mold Analysis Laboratory since 2006
- NELAC Proficiency Testing for Non-Potable Water since 2007

## **II. CAPABILITIES AND METHODOLOGIES**

Hygeia is considered to be one of the burgeoning environmental laboratories in the continental United States and is recognized for its ability to provide highly reliable services at very competitive rates. As outlined below, Hygeia conducts microbial analyses using proven equipment and procedures. Staffed with several full-time and part-time analysts, Hygeia is capable of handling the most demanding of projects, large or small, including those requiring an emergency response. A listing of our facility's equipment is provided in the Section V of this Statement of Qualifications.

### **▪ Environmental Microbiology**

Hygeia introduced environmental microbial services beginning in 2001. Hygeia's environmental microbiological services include fungal and bacterial analyses of culturable air, swab, bulk, water and dust samples; analysis of non-culturable air samples including Zefon, Allergenco, Micro 5, Cyclex-D, and Burkhard; fungal identification of surface samples including tape lift, bulk, and swab samples; ELISA quantification of mycotoxins; ELISA quantification of indoor allergens; total coliform, *E. coli*, *Staphylococcus aureus* (including MRSA), *Listeria* sp. and Enterobacteriaceae quantification of bulk and swab samples; yeast speciation; Biolog bacterial speciation; microbiological examination of drinking water, wastewater and recreational water.

Hygeia Laboratories Inc.  
3626 Westchase Drive • Houston, TX 77042  
Phone (713) 343-4483 • Fax (713) 977-1963  
[www.hygeialabsinc.com](http://www.hygeialabsinc.com)

- **Entomology**

Hygeia introduced entomological services beginning in 2005. Hygeia's entomological services includes: customizable projects for the efficacy testing of baits against fire ants, cockroaches, termites and other household, agricultural and structural pests, insect identification, and forensic entomology.

### **Analytical Report Format**

Hygeia understands that analytical reports must be as thorough and definitive as the people, methods, and equipment that are employed to produce the data. Each report must be presented in a format that is accessible and understandable to clients and governmental regulatory agencies that may review the results, but also must be easily understood by people possessing no prior knowledge of microbiology or laboratory methodologies. Accordingly, Hygeia has developed standard report formats designed to be used by all levels of personnel with microbial management or reporting responsibilities. In preparing its reports, Hygeia utilizes a Microsoft Access based report format. Additionally, data can be exported to be used in other databases or produced on magnetic media such as floppy disks, PDF files, and electronic mail, thereby allowing clients to use or archive analytical results following issuance of the reports. At the request of a client, designated portions or items within a report format can be modified to meet any specified need.

### **Quality Assurance/Quality Control (QA/QC) Program**

To maintain the integrity of its analyses, Hygeia participates in both inter- and intra-laboratory quality control programs. The QA/QC program is comprised of three primary elements: in-house, inter-laboratory with competitive laboratories, and publicly available government-sponsored programs. The in-house program combines routine QC with random and blind QC analyses. Inter-laboratory QC is accomplished through a Round Robin program in which sets of samples are circulated and independently analyzed by each of the participating laboratories. Publicly available quality assurance programs, such as the AIHA EMPAT program, identify analytical testing laboratories that are proficient in the analysis of environmental samples.

### **III. PERSONNEL**

Hygeia provides all required professional and technical expertise from in-house resources. Each project will be staffed by personnel who have developed the technical expertise necessary to address and successfully complete the previously mentioned analytical services.

#### **Training**

Hygeia's microscopists, biologists, and technicians possess a detailed knowledge of current laboratory procedures as well as a complete understanding of the applicable regulatory requirements governing analysis. All personnel are thoroughly trained in data integrity to ensure client information or results are not compromised in any fashion. Microbiologists have either completed the McCrone Research Institute's "Indoor Air Quality: Fungal Spore Identification " course or a rigorous in-house training program. The topics covered by this program include: the approved analytical methods and in-house SOPs for microbial analysis on different matrices; QA/QC requirements; sample handling, preservation, storage, and custody; general laboratory safety procedures; sample preparation methods, instrument set-up and calibration, and sample analysis; procedures for record keeping of raw data, including sample and QA/QC results. The new analyst must successfully analyze performance evaluation samples (from previous rounds of the AIHA/EMPAT program) and other QC samples before being allowed to perform client sample analysis.

#### **Key Personnel**

Hygeia has presented the following information evidencing the qualifications and capabilities of key laboratory personnel. If further information regarding any analytical staff members is required, it will be provided upon request.

**Crystal L. Enloe, MS**  
*Laboratory Director*

**EDUCATION**

---

MS, Biology, Sam Houston State University, Huntsville, Texas, 2000  
BS, Biology, Lamar University, Beaumont, Texas, 1997

**PROFESSIONAL SUMMARY**

---

Ms. Enloe is the microbiology laboratory director at Hygeia Laboratories in Houston, Texas. She is responsible for all laboratory services, quality control, project scheduling, operational management procedures, personnel recruitment, and service development. Ms. Enloe specializes in many different areas including fungal and bacterial identification and enumeration, statistical analyses, and development of research projects.

**PROFESSIONAL EXPERIENCE**

---

- Environmental microbiologist for Envirotest, LLC
- Completion of the Microscopy of Dust, Spores, and Pollen course at the McCrone Research Institute in Chicago, IL
- Member of the American Society for Microbiology since 2004
- Publication on Endolithic Microbial Communities of the Colorado Plateau for the American Society for Microbiology

**Kenneth G. Wunch, Ph.D.**  
*Technical Advisor*

**EDUCATION**

---

Ph.D., Environmental Microbiology, Tulane University, 1996  
MS, Mycology, Tulane University, 1991  
BS, Biology, Tulane University, 1989

**PROFESSIONAL SUMMARY**

---

Dr. Wunch serves as a technical advisor for Hygeia Laboratories in Houston, Texas. He specializes in biofilm remediation and his experience includes fungal and bacterial identification and enumeration, mycotoxin analyses, microbiological formulations, and custom research projects.

**PROFESSIONAL EXPERIENCE**

---

- Completion of the Microscopy of Dust, Spores, and Pollen course at the McCrone Research Institute in Chicago, IL
- Lab Director of the Sam Houston State University's Disease Vector Program (West Nile, St. Louis Encephalitis, Dengue Fever, Chagas Disease) for the Air Force Border Health and Environmental Threats Initiative
- Principal Investigator at the Texas Research Institute for Environmental Studies for the development and evaluation of environmental technologies for the Air Force Institute for Environmental, Safety and Occupational Health Risk Analysis
- Principal Investigator at Sam Houston State University for the detection, testing, mapping and movement of carriers of deadly disease: disease vector studies along the US-Mexico border and their potential threat to Homeland Security
- Scientific Project Coordinator of Synergy Ventures for the analysis of novel technologies from the Russian Research Centre Kurchatov Institute
- Application of white-rot fungi to pentachlorophenol (PCP) contaminated soils for Earthfax Engineering
- Principal Investigator at Tulane University for the bioremediation of munitions for the Department of Defense Science and Engineering Research
- Principal Investigator at Tulane University and the United States Department of Agriculture Southern Regional Research Branch (USDA-SRRC) for the bioremediation of petroleum contaminated soils for the Exxon Corporation
- Mycotoxin analysis and aflatoxin genetics of *Aspergillus nidulans*
- Inventor of Fungal Compositions and Methods for Bioremediation. U.S. Patent # 08/599,266.
- Author of 25 research articles and abstracts including chapters in *The Manual of Environmental Microbiology* and *Fungi in Bioremediation*
- Reviewer of 15 advanced textbooks

Hygeia Laboratories Inc.  
3626 Westchase Drive • Houston, TX 77042  
Phone (713) 343-4483 • Fax (713) 977-1963  
www.hygeialabsinc.com

**Jerry L. Cook, Ph.D.**  
*Entomology Supervisor*

**EDUCATION**

---

Ph.D., Entomology, Texas A&M University, 1995  
MS, Zoology, University of Southern Colorado, 1992  
BS, Geology, University of Southern Colorado, 1986

**PROFESSIONAL SUMMARY**

---

Dr. Cook is the entomology supervisor at Hygeia Laboratories in Houston, Texas. He is responsible for the procurement, design, implementation, and reporting of all entomological projects for the lab. Dr. Cook specializes in many different areas including the biological control of red imported fire ants, mosquitoes, termites, cockroaches, and other household, agricultural, and structural pests.

**PROFESSIONAL EXPERIENCE**

---

- Principal Investigator at Sam Houston State University for the detection, testing, mapping and movement of carriers of deadly disease: disease vector studies along the US-Mexico border and their potential threat to Homeland Security.
- Entomological Curator at the Houston Museum of Natural Science
- Principal Investigator for the Texas National Guard, Environmental Resources Management Branch for the management of red harvester ants and red imported fire ants at Camp Swift, Texas
- Director for the Moody Gardens Native Butterfly Captive Breeding Program
- Principal Investigator for Whitmire Micro-Gen for the efficacy of bait formulations for red imported fire ants, sweet feeding ants and carpenter ants
- Principal Investigator for Wellmark International for the efficacy of bait formulations for cockroaches and sweet feeding ants
- Developer of The Correspondence School in Termite Biology and Control for Orkin Pest Control
- Principal investigator for the City of Huntsville, Texas for mosquito surveillance for the West Nile Virus
- Principal Investigator for Moody Gardens for the biological control of pests in an enclosed environment
- Academic Director for the Texas Academy of Science
- Author of 75 research articles and abstracts including chapters in *The Handbook of Household and Structural Insect Pests* and *Termite Biology and Control*
- Reviewer of 25 advanced textbooks

## Microbiological Analysts & Technicians

Our analysts have experience in all aspects of sample analysis currently offered at Hygeia. These include analysis of nonviable samples (spore traps, tapelifts, swabs, bulks, and dust cassettes) for the presence of mycological contaminants, as well as pollen and other components of dust; and analysis of viable samples (impaction plates, contact plates, swabs, bulks, dust cassettes, and water) for the presence of mycological and bacterial contaminants. They are also skilled in trouble-shooting data management software and working in a computer related setting.

### **Adan Carranza, BS** *Analyst I*

#### **EDUCATION**

---

BS, Biology, Texas Southern University, Houston, Texas

#### **PROFESSIONAL EXPERIENCE**

---

- Mr. Carranza came to Hygeia Laboratories in September, 2005
- Completion of the Microscopy of Dust, Spores, and Pollen course at the McCrone Research Institute in Chicago, IL

### **Vanessa A. Garcia, BS** *Sample Coordinator*

#### **EDUCATION**

---

BS, Biology, University of Houston, Houston, Texas, 2008

#### **PROFESSIONAL EXPERIENCE**

---

- Ms. Garcia came to Hygeia Laboratories in August, 2008

**Delrick Polly, BS**  
*Technician*

**EDUCATION**

---

BS, Dental Hygiene, The University of Louisiana at Monroe, Monroe, Louisiana, 2006

**PROFESSIONAL EXPERIENCE**

---

- Mr. Polly came to Hygeia Laboratories in September, 2008

**IV. STATEMENT OF INSURANCE**

Hygeia maintains current liability insurance coverage as required for professional engineering consultants. This coverage includes workers' compensation coverage as well as automobile, general liability, and errors and omissions coverage for all analytical work. If further information regarding insurance is required, it will be provided upon request.

**V. LIST OF EQUIPMENT**

- (2) Accuscope 3000 Series Compound Light Microscopes
- (1) Labomed CXR3 Compound Light Microscope
- (1) Labomed Digi2 Digital Microscope
- (1) Nikkon Labophot Compound Light Microscope
- (2) Leica C ME Compound Light Microscopes
- (1) Olympus CHK Compound Light Microscope
- (1) VWR Stereoscope with Light Source
- (1) National Model 420 Stereoscope
- (1) Labconco Class II Biosafety Cabinet
- (1) SterilGard SG-600 Biosafety Cabinet
- (2) Validator Plus Benchtop Autoclaves
- (1) Sanyo MLS-3751L 50L Top Loading Autoclave
- (1) Thermo Multiskan EX ELISA Reader
- (1) Thelco® Precision, model 3DM (3508) Incubator
- (2) VWR 1510E Incubators
- (1) VWR 1500E Incubators
- (1) Yamato IC 83 Incubator
- (2) Thermo Scientific MaxQ 5000 Incubated Floor Shaker
- (1) Scientech SA120 Analytical Balance
- (1) Ohaus Scout-Pro Benchtop Balance
- (1) Corning Scholar 425 pH Meter
- (1) Sanyo Ultra-Low (-80 C)Temperature Freezer
- (1) Norlake Scientific Lab Refrigerator
- (2) GE Laboratory Refrigerators

Hygeia Laboratories Inc.  
3626 Westchase Drive • Houston, TX 77042  
Phone (713) 343-4483 • Fax (713) 977-1963  
www.hygeialabsinc.com

- (1) Maytag Laboratory Refrigerator
- (1) Kenmore 13 Laboratory Refrigerator
- (1) Corning Hotplate/Stirrer
- (1) Daigger Hotplate/Stirrer
- (2) VWR Mini-Vortexers
- (1) Waring Explosion Proof Blender
- (1) Spectroline Ultraviolet Hand Lamp
- (1) IDEXX Qaunti-Tray Sealer Model 2X
- (1) Biolog Microlog Station
- (1) Biolog Model 21907 Turbidometer

## **VI. STATEMENT OF LABORATORY ACCREDITATIONS**

- AIHA # 167400      American Industrial Hygiene Association**  
Originally Issued January 2005  
Environmental Microbiology: Fungal by Culture & Direct Examination
- DSHS # LAB0148      Texas Department of State Health Services**  
Originally Issued March 2005  
Registered as mold analysis laboratory in the state of Texas