

**BIOQUAL, Inc.**  
**A-3086-01**  
**ANIMAL WELFARE ASSURANCE**  
**in accordance with the PHS Policy for**  
**Humane Care and Use of Laboratory Animals**

I, **Mark G. Lewis, PhD**, as named Institutional Official for animal care and use at BIOQUAL, Inc., hereinafter referred to as 'Institution', by means of this document, provide assurance that this Institution will comply with the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals (Policy).

## **I. Applicability of Assurance**

**This Assurance applies whenever this Institution conducts the following activities: all research, research training, experimentation, biological testing, and related activities involving live vertebrate animals supported by the PHS, HHS and/or NSF. This assurance covers only those facilities and components listed below. This Assurance is applicable to all research, research training, experimentation, biological testing and related activities involving live, vertebrate animals supported by the Public Health Service (PHS) and conducted at this Institution, or at another institution as a consequence of the subgranting or subcontracting of a PHS-conducted or –supported activity by this Institution.**

The following are branches and major components over which this Institution has legal authority:

"Institution" shall refer to the three major locations of BIOQUAL

Parklawn Drive Facility  
12301 Parklawn Drive  
Rockville MD, 20852

Research Boulevard Facility  
2501 Research Boulevard  
Rockville MD, 20850

Piccard Research Facility  
1330 Piccard Drive  
Suite 202  
Rockville MD, 20850

The corporate headquarters is located at:

BIOQUAL Corporate Office  
4 Research Court  
Rockville MD, 20850

There are no off-site or satellite facilities or other covered components.

## **II. Institutional Commitment**

- A. This Institution will comply with all applicable provisions of the Animal Welfare Act and other Federal statutes and regulations relating to animals.
- B. This Institution is guided by the U.S Government Principles for the Utilizations and Care of Vertebrate Animals Used in Testing, Research and Training.
- C. This Institution acknowledges and accepts responsibility for the care and use of animals involved in activities covered by this Assurance. As partial fulfillment of this responsibility, this Institution will ensure that all individuals involved in the care and use of laboratory animals understand their individual and collective responsibilities for compliance with this Assurance, and other applicable laws and regulations pertaining to animal care and use.

- D. This Institution has established and will maintain a program for activities involving animals according to the *Guide for the Care and Use of Laboratory Animals* (Guide).
- E. This Institution agrees to ensure that all performance sites engaged in activities involving live vertebrate animals under consortium (subaward) or subcontract agreements have an Animal Welfare Assurance and that the activities have Institutional Animal Care and Use Committee (IACUC) approval.

### III. Institutional Program for Animal Care and Use

**A. The lines of authority and responsibility for administering the program and ensuring compliance with the PHS Policy are shown below.**

IACUC Chair Wagner and members (b) (6), Cook, (b) (6) report directly or indirectly to the IO Dr. Lewis; the non-affiliated members, (b) (6) communicate to the IO via phone or e-mail, or by direct verbal communication. This insures regular lines of communication by all IACUC members.

An Organizational Flowchart graphic is attached below in section XI.

**B. The qualifications, authority, and percent of time contributed by the veterinarian(s) who will participate in the program are as follows:**

1) Dr. Anthony Cook

Qualifications:

Degrees: B.S., Laboratory Animal Science, North Carolina A & T State University, 1994; D.V.M.; Tuskegee University School of Veterinary Medicine, 1998; M S, Pathobiology, University of Florida; 2002; Diplomate, ACLAM, 2005

Training or experience in laboratory animal medicine or in the use of the species at the institution:

Post-doctorate training, University of Florida, 2002; BIOQUAL, Inc Research Boulevard Facility Assistant Director and Attending Clinical Veterinarian 2002 to 2007; Director, Research Boulevard 2007 – current.

Authority: Dr. Cook has direct program authority and responsibility for the Institution's animal care and use program including access to all animals. Dr. Cook is the Institutional and IACUC Attending Veterinarian. Dr. Cook is a full-time employee of BIOQUAL, and devotes 100% of his time to the animal care program.

2) Dr. Wendeline L. Wagner

Qualifications:

Degrees: B.S., Veterinary Science, University of Minnesota, 1988; D.V.M; University of Minnesota, 1990; M.S. Clinical Laboratory Science 1996

Training or experience in laboratory animal medicine or in the use of the species at the institution:

Post-doctorate training, University of Minnesota, 1993 – 1998; NIH-NIAID, 1998-1999; SRI, Frederick 1999-2003; BIOQUAL, Inc. 2003 – current; Assistant Director and Attending Clinical Veterinarian of BIOQUAL Parklawn Facility, 2003 – 2007; Director, Parklawn facility 2007 – current

Authority:

Dr. Wagner is the attending clinical veterinarian for the Parklawn facility and has delegated program authority and responsibility for the Institution's animal care and use program,

including access to all animals. Dr. Wagner is the IACUC chair. Dr. Wagner is a full-time employee of BIOQUAL, and devotes 100% of her time to the animal care program.

(b) (6)



- C. The IACUC at this Institution is properly appointed according to PHS Policy IV.A.3.a. and is qualified through the experience and expertise of its members to oversee the Institution's animal care and use program and facilities. The IACUC consists of at least 5 members, and its membership meets the composition requirements of PHS Policy**

**IV.A.3.b. Attached is a list of the chairperson and members of the IACUC and their names, degrees, profession, titles or specialties, and institutional affiliations.**

The IACUC membership table can be found in Part VIII.

**D. The IACUC will:**

- 1) Review at least once every 6 months the Institution's program for humane care and use of animals, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual program reviews are as follows:**

Within the same time frame as the semiannual facility inspection, generally in March and again in September, the IACUC will perform a Program Review. The IACUC chair schedules the semiannual program review meeting to which a minimum of at least two voting IACUC members must be in attendance. However, all BIOQUAL IACUC members, the IACUC coordinator, the BIOQUAL Facility Managers, the BIOQUAL Project Managers, the behaviorist staff and all veterinarians are invited to the program review meeting and historically attendance is quite high. The review agenda follows the OLAW Semiannual Program and Facility Review Checklist. Specific topics of concern or interest are included or highlighted on the agenda. At this meeting, there is a review of all BIOQUAL policies and procedures for possible departures from the PHS Policy and the GUIDE. If present, any departures are identified, reviewed, and designated either as scientifically justified and previously approved by the IACUC; or as deficiencies, and reported as appropriate.

The Program Review will include, but is not necessarily limited to, a review of the following: (a) IACUC membership, function and training (b) IACUC records and reporting (c) veterinary care (d) animal care and husbandry (e) personnel qualifications, experience and training, to include record keeping of such (f) occupational health and safety (g) security and disaster planning (h) reporting of any issues to the IACUC by BIOQUAL employees. In addition, the Program Review will include a review of the Institution's PHS Assurance. If program deficiencies are noted during the review, they will be categorized as significant or minor and the IACUC Committee will develop a reasonable and specific plan and schedule for correcting each deficiency. A significant deficiency is one that is or may be a threat to the health and safety of the animals or personnel. No member will be involuntarily excluded from participating in any portion of the reviews.

- 2) Inspect at least once every 6 months all of the Institution's animal facilities, including satellite facilities and animal surgical sites, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual facility inspections are as follows:**

Semiannual facility inspections are scheduled at least every 6 months, generally in March and again in September at the sites of animal housing and procedures: Parklawn Drive, Research Boulevard, and Piccard Drive. All IACUC voting members, facility managers, project managers and veterinarians are invited to join the facility inspection, at least two voting members from the IACUC will attend each inspection. An outside member is strongly encouraged to attend at least one facility inspection per year. The facility inspection team will visit all the Institute's facilities where animals are housed or supported, including holding areas, animal care support areas, storage areas, procedure areas, and surgery areas. Equipment used for transporting of the animals is also inspected. The IACUC committee uses the GUIDE and other pertinent resources such as the PHS Policy, and the Code of Federal Regulations (the Animal Welfare Act) as a basis for the facility review. To facilitate the evaluation, the IACUC Committee will use a

checklist based on the OLAW Semiannual Program and Facility Review Checklist, the most recent version found on the website. If deficiencies are noted during the inspection, they will be categorized as significant (major) or minor and the IACUC Committee will develop a reasonable and specific plan and schedule for correcting each deficiency. A significant deficiency is one that is or may be a threat to the health and safety of the animals or personnel. No member will be involuntarily excluded from participating in any portion of the inspections.

**3) Prepare reports of the IACUC evaluations according to PHS Policy IV.B.3. and submit the reports to the Institutional Official. The IACUC procedures for developing reports and submitting them to the Institutional Official are as follows:**

Individual IACUC members will convey their observations to the IACUC Chairperson, or his or her designee, who, in turn, will draft the reports using the suggested OLAW Semiannual Report to the Institutional Official format from the OLAW website. The reports will contain a description of the nature and extent of the institution's adherence to the Animal Welfare Act, the GUIDE and the PHS Policy, identify specifically any departures from the provisions of the Animal Welfare Act, the GUIDE and the PHS Policy, and state the reasons for each departure. The reports will distinguish significant deficiencies from minor deficiencies. If program or facility deficiencies are noted, the reports will contain a reasonable and specific plan and schedule for correcting each deficiency. If some or all of the institution's facilities are accredited by AAALAC International the report will identify those facilities as such. Copies of the draft reports will be reviewed, revised as appropriate, and approved by the Committee. The final reports will be signed (hard copy or electronically) by a majority of the IACUC members and will include any minority opinions. If there are no minority opinions, the reports will reflect such. Following completion of each evaluation, the completed report will be submitted to the Institutional Official within 30 days.

**4) Review concerns involving the care and use of animals at the Institution. The IACUC procedures for reviewing concerns are as follows:**

BIOQUAL Standard Operating Procedure GC-003-01 "Reporting Deficiencies in Animal Care" and Employee Policy #323 "Reporting Animal Abuse" are provided to each new employee at the time of hire. The IACUC policy, IP-016-00 "IACUC Animal Welfare Reporting Procedures," reminding all employees of these, and providing IACUC contact information, is distributed annually, in January, and whenever any update or change in the policy is made, to all employees. A copy of the IACUC policy is posted in each building where all employees may easily view it. Any employee may contact the IACUC Chair, any member of the IACUC, any BIOQUAL veterinarian, any supervisor, the Institutional Official, or use an anonymous telephone hotline for any concerns/issues related to the care and use of animals. BIOQUAL policy includes a guarantee against reprisal to any employee who, in good faith, raises a concern. Concerns reported by any individual will be promptly evaluated by the IACUC.

All reported concerns will be brought to the attention of the full Committee. If necessary the IACUC Chair will convene a meeting to discuss, investigate, and address any reported concern. Reported concerns and all associated IACUC actions will be recorded in the IACUC meeting minutes. The Committee will report such actions to the IO and, as warranted, to OLAW.

**5) Make written recommendations to the Institutional Official regarding any aspect of the Institution's animal program, facilities, or personnel training. The procedures for making recommendations to the Institutional Official are as follows:**

Recommendations regarding any aspects of the institution's animal program or facilities are discussed and developed by the IACUC. The IACUC's recommendations are included in the IACUC Meeting minutes or a report of the IACUC's evaluations or a separate letter. Such documents are reviewed and approved by the Committee and then submitted to the Institutional Official.

The Chair of the IACUC will have the authority to implement the recommendations of the IACUC. The Chair will report directly to the Institutional Official and be in constant communication with the IO; appropriate recommendations can always be promptly implemented.

**6) Review and approve, require modifications in (to secure approval), or withhold approval of PHS-supported activities related to the care and use of animals according to PHS Policy IV.C.1-3. The IACUC procedures for protocol review are as follows:**

Protocols for review at our Institution are either generated internally by in-house investigators, or forwarded from contract work such as at the NIH. When a protocol is received from a Project Officer or contract investigator, it will fall into one of three categories:

- The protocol is complete, specific to BIOQUAL, often pre-reviewed and approved by an Institute IACUC, and contains all of the items and requirements to be reviewed by the BIOQUAL IACUC. The client project manager forwards this protocol to the BIOQUAL IACUC Chairperson for review by the BIOQUAL IACUC.
- The protocol is essentially complete, but there are some items missing or perhaps unclear. The BIOQUAL PI/project manager is aware of the information needed for protocol review and contacts the client scientist and acquires the additional information, and then forwards the completed protocol to the IACUC Chairperson for review by the BIOQUAL IACUC.
- The protocol is basically a scientific plan and does not contain all of the information involved in an IACUC review. In this instance, the BIOQUAL project manager or BIOQUAL PI works with the client scientist to transcribe the information needed onto BIOQUAL's IACUC Proposal Form (Lab Form No.045-4) or IACUC Protocol Cover Sheet (Lab Form No. 125-0) as appropriate. The completed form is then forwarded to the BIOQUAL IACUC Chair for review by the IACUC.

Requests for animal work from entities other than the NIH generally fall into the third classification described above.

According to IACUC Policy, IP-009 "IACUC Proposal Review Process":

Review Process

Pre-review: The IACUC Chairperson or coordinator performs the initial review to determine that the material is complete and that there are no immediate facility or space objections to performing the work at BIOQUAL.

IACUC Review: Prior to the review, each IACUC member will be provided electronically with written description of protocols that involve the care and use of animals and any member of the IACUC may obtain, upon request, full committee review of those protocols. If a full committee meets, then a quorum (a majority of voting members) must be present, and decisions are made based on a majority vote, taken by verbal roll call, of members that are present.

Full Committee Review: When a proposal is flagged for a Full Committee Review (FCR), a meeting will be scheduled to accommodate as many members as possible, minimally a quorum will be present in order to vote on the disposition of the review. In the case of conflicting schedules or proximity to a regularly scheduled meeting, the FCR will take place at the regularly scheduled meeting.

The entire proposal in question is sent to the IACUC members in advance for their review. During the meeting, IACUC members deliberate in an open and impartial business session regarding the proposed activities. At the conclusion of the deliberations, a voting member will make a motion to disposition the proposal. The three possible motions are as follows:

1. Outright Approval

- A proposal may be passed as it is written by the majority affirmative vote of the motion by the convened quorum. Proposals passed in this way are considered approved at that meeting and are distributed for use at the conclusion of the meeting.

2. Approval with Required Modifications

- A proposal may be approved with required modifications by a majority affirmative vote of the motion by the convened quorum. However, in this case the proposal is not considered fully approved on the date of the meeting, but rather must make the required modifications to secure approval. The required modifications to be made will be verified by either
  - a) a subsequent FCR wherein the proposal receives Outright Approval, or
  - b) the assignment of a designated member. The designated member process may only occur following the unanimous affirmative vote of the process of the convened quorum (as per BIOQUAL IACUC Policy IP-009: Appendix 1 - Committee Members' Agreement). The member will be assigned by the IACUC Chairperson following the vote. The designated member will follow the Designated Member Review (DMR) process (below).

3. Withholding Approval

- A proposal may have its approval withheld by a majority affirmative vote of the motion by the convened quorum. In this case, the Principle Investigator (PI) will receive a formal letter with notification of the withheld approval, along with the reasons for that decision. The PI may then respond in writing to the IACUC addressing these concerns. In this response, the PI may request further review of the proposal in the following ways:
  - Resubmission of proposal for IACUC review. A submission of this sort is most common and will address the major concerns of the IACUC as described in the formal letter.
  - Request for an in-person discussion. The PI may request to attend the next meeting of the IACUC in order to resolve the concerns of the members. During this meeting, the PI will be available for questions and discussion, however will recuse herself prior to any call for motion to vote.

Note: If a protocol submission is deemed to lack substantive information necessary for the IACUC to make a judgement, the IACUC will defer review until the requisite information is provided by the investigator.

If FCR is not requested, the (DMR) system is used to conduct the review.

Designated Member Review: For DMR, one member of the IACUC, designated by the chairperson and qualified to conduct the review, is assigned to review protocols and has the authority to approve, require modifications to secure approval, or to request full committee review of those protocols.

In instances where the IACUC uses the designated-member review (DMR) method the protocol or amendment will be distributed to all IACUC members to allow all members the opportunity to call for FCR; records of polling of members to obtain concurrence to use the DMR method or concurrence by silent assent after five (5) working days, and approval of protocols via DMR are maintained and recorded in the minutes of the next convened IACUC meeting. In the DMR system, the materials are distributed and votes are collected electronically, and the information recorded and saved.

In order to approve proposed protocols or proposed significant changes in ongoing protocols, the IACUC will conduct a review of those components related to the care and use of animals and determine that the proposed protocols are in accordance with the PHS Policy. In making this determination, the IACUC will confirm that the protocol will be conducted in accordance with the Animal Welfare Act insofar as it applies to the activity, and that the protocol is consistent with the Guide, unless acceptable justification for a departure is presented. Further, the IACUC shall determine that the protocol conforms to the Institution's PHS Assurance and meets the following requirements:

1. Procedures with animals will avoid or minimize discomfort, distress and pain to the animals, consistent with sound research design.
2. Procedures that may cause more than momentary or slight pain or distress to the animals will be performed with appropriate sedation, analgesia or anesthesia, unless the procedure is justified for scientific reasons in writing by the investigator.
3. Animals that would otherwise experience severe or chronic pain or distress that cannot be relieved will be painlessly euthanized at the end of the procedure or, if appropriate, during the procedure.
4. The living conditions of animals will be appropriate for their species and contribute to their health and comfort. The housing, feeding, and nonmedical care of the animals will be directed by a veterinarian or other scientist trained and experienced in the proper care, handling and use of the species being maintained or studied.
5. Medical care for animals will be available and provided as necessary by qualified veterinarians.
6. Personnel conducting procedures on the species being maintained or studied will be appropriately qualified and trained in those procedures.
7. Methods of euthanasia used will be consistent with the current recommendations of the American Veterinary Medical Association (AVMA) Guideline on Euthanasia, unless a deviation is justified (and IACUC approved) for scientific reasons, in writing, by the investigator.

Required modifications: When the IACUC requires modifications (to secure approval), of a protocol, such modifications are reviewed as follows:

- FCR or DMR following the procedures delineated above.
- DMR of modifications if approved unanimously by all members at the meeting at which the required modifications are developed, delineated AND if the entire current IACUC has previously approved and documented a policy of DMR for required modifications; provided however, that if any member calls for FCR of the modifications, such modifications can only be reviewed and approved by FCR.

- Minor modifications of an administrative nature such as typographical or grammatical errors, required signature, may be confirmed by IACUC administrative support personnel.

Conflicts of Interest: No member may participate in the IACUC review or approval of a protocol in which the member has a conflicting interest (e.g. is personally involved in the project) except to provide information requested by the IACUC; nor may a member who has a conflicting interest contribute to the constitution of a quorum. The IACUC may invite consultants to assist in reviewing complex issues. Consultants may not approve or withhold approval of an activity or vote with the IACUC unless they are also members of the IACUC. When distributing protocols for evaluation in which one or more members are in conflict, this is noted to the remaining members of the group and the member in conflict does not participate in the review.

Expedited Review: Since the majority of the protocols at this Institution are reviewed using the DMR system, this is already considered an expedited review, so there is no need for a special consideration for this circumstance.

**7) Review and approve, require modifications in (to secure approval), or withhold approval of proposed significant changes regarding the use of animals in ongoing activities according to PHS Policy IV.C. The IACUC procedures for reviewing proposed significant changes in ongoing research projects are as follows:**

The review and approval of significant changes to protocols (called amendments) are handled in the same manner as new protocols. See Paragraph III.D.6 above.

Examples of changes considered to be significant include, but are not limited to, changes:

- in the objectives of a study
- from nonsurvival to survival surgery
- resulting in greater discomfort or in a greater degree of invasiveness
- in the species or in number, greater than 10% of the original amount, of animals used
- in Principal Investigator

Minor changes, such as change of personnel other than the PI, or change in BIOQUAL facility, are approved by the facility veterinarian and an IACUC administrator and other IACUC members as appropriate. Approved minor changes are reported to the IACUC at the next convened meeting.

**8) Notify investigators and the Institution in writing of its decision to approve or withhold approval of those activities related to the care and use of animals, or of modifications required to secure IACUC approval according to PHS Policy IV.C.4. The IACUC procedures to notify investigators and the Institution of its decisions regarding protocol review are as follows:**

As primarily a contract institution, BIOQUAL's customers (at the NIH and elsewhere) assume that the activities they request will be and are being performed unless BIOQUAL notifies them in writing that an activity (protocol) has not been approved. For some customers (e.g. those who are effectively subcontracting to BIOQUAL), an official approval letter via e-mail is forwarded to the customer from the IACUC Chair. All approved protocols and the accompanying correspondence are kept as a hard copy in a master file and all relevant copies are fielded electronically on an internal database that BIOQUAL employees (including the Institutional Official) can access. For protocols that

are not approved, a description of the deficiencies that must be corrected is included in the written notification to the PI and client. As noted above in Part III.D.6, the PI may then respond in writing to the IACUC addressing these concerns. In this response, the PI may request further review of the proposal in the following ways:

- Resubmission of proposal for IACUC review
- Request for an in-person discussion.

Direct notification of activity (protocol approval) is provided to the BIOQUAL Project Manager [on-site PI] who is responsible for conducting the activity. This approval is provided in the form of an e-mail from the IACUC Chair containing the protocol as it has been approved.

The Institutional Official is notified regarding all IACUC decisions by written notification from the IACUC chair.

**9) Conduct continuing review of each previously approved, ongoing activity covered by PHS Policy at appropriate intervals as determined by the IACUC, including a complete review at least once every 3 years according to PHS Policy IV.C.1.-5. The IACUC procedures for conducting continuing reviews are as follows:**

Annual Protocol Review:

All ongoing activities are monitored continuously by the animal care and use, technical and veterinary staff. Associated protocols are reviewed by the PI and a member(s) of the IACUC at least annually and the results of this review recorded. Monthly, the Principal Investigator is sent an Annual Protocol Review questionnaire for each of their active protocols approved in that calendar month. The questionnaire is filed with the protocol and describes the activities that have occurred up to that date. All active protocol annual reviews are listed in the minutes of every IACUC meeting, and members review and approve these annual reviews.

Protocols are approved for a maximum of 36 months and expire no later than the three-year anniversary of the initial IACUC review. If activities are to continue beyond the expiration date, a new protocol must be submitted, reviewed, and approved as described in Paragraph III.D.6, above.

The IACUC Chair and IACUC Coordinator keep track of the protocols and their annual review dates via electronic database; results are stored in hard copy and electronically.

Post Approval Monitoring:

The Post Approval Monitoring process is overseen by the IACUC administrative department.

A minimum of twelve (12) open and active protocols will be reviewed annually. Protocols will be chosen at random from among those actively performing procedures. Preference may be given towards protocols with unusual or particularly difficult procedures to ensure proper execution.

In cooperation with the QA staff, the IACUC Coordinator will schedule an observational visit for the chosen protocol. During this visit, the monitoring team will observe the procedures being performed, then meet briefly with the project manager to discuss the progress on and adherence to the chosen protocol.

Following the visit, the monitoring team will fill out the Post Approval Monitoring form (Lab Form No. 157 Rev 00), which will be saved electronically and in hard copy with the protocol. This report is also delivered to the Principle Investigator, Project Manager, IACUC Chair, and will be available for review at each quarterly IACUC meeting.

If the report identifies any possible deviations from the approved protocol, the monitoring team will make a recommendation for resolution within thirty (30) days to the IACUC

Chair, who will present it to the IACUC. The IACUC will determine if the reported issue constitutes a minor or significant deviation, and will then report their determination to the IO and to OLAW, as applicable.

**10) Be authorized to suspend an activity involving animals according to PHS Policy IV.C.6. The IACUC procedures for suspending an ongoing activity are as follows:**

The IACUC may suspend an activity that it previously approved if it determines that the activity is not being conducted in accordance with applicable provisions of the Animal Welfare Act, the Guide, the Institution's Assurance or IV.C.1. a-g of the PHS Policy. The IACUC may suspend an activity only after review of the matter at a convened meeting of a quorum of the IACUC and with the suspension vote of a majority of the quorum present. If the IACUC suspends an activity involving animals, or any other institutional intervention results in the temporary or permanent suspension of an activity due to noncompliance with the Policy, Animal Welfare Act, the GUIDE, or the institution's Assurance, the Institutional Official, in consultation with the IACUC shall review the reasons for suspension, take appropriate action, and report that action with a full explanation to OLAW.

As far as BIOQUAL is concerned, each of the veterinarians employed by BIOQUAL has full authority to temporarily halt an ongoing activity. Activities halted in this way will remain halted until they are reviewed by a convened meeting of a quorum of the IACUC.

**E. The risk-based occupational health and safety program for personnel working in laboratory animal facilities and personnel who have frequent contact with animals is as follows:**

BIOQUAL has a written Health and Safety Policy which states that employees will be provided the information, procedures, and instructions to ensure a healthy and safe environment in which to work. This policy has been implemented through a comprehensive Occupational Health and Safety Program designed to protect the safety of BIOQUAL employees and the public, and to comply with federal, state, and local laws on health and safety. This program includes the following elements:

Management Commitment

The authority and responsibility for Health and Safety has been integrated with the management system for BIOQUAL and includes involvement of employees at all levels. The Biosafety Officer is responsible for the design, implementation, and monitoring of all safety associated programs; this position reports directly to the Chief Operating Officer.

Employee Involvement

For each facility, BIOQUAL has a standing Health and Safety Committee comprised of non-management employees, which meets on a regular schedule. This committee is charged with the responsibility and authority to monitor health and safety conditions; to review any health and safety conditions; to review all accident reports and make recommendations for improvements; to review health and safety concerns of individual employees; and to work with BIOQUAL management to effect health and safety improvements. Management personnel attend each meeting as invitees.

Hazard Assessment

All new protocols at BIOQUAL are reviewed by the Biosafety Officer and Institutional Biosafety Committee to assess possible hazards to employees and the environment to recommend appropriate procedures to eliminate these hazards. To ensure awareness and control risks, BIOQUAL has designed and implemented a Health and Safety Manual, a

Chemical Hygiene Plan, a Radiation Protection Program, a BSL3/ABSL3 Biosafety Manual, and an Exposure Control Plan. BIOQUAL incorporates the recommendations of the CDC-NIH "Biosafety in Microbiological and Biomedical Laboratories" into its Occupational Health Program and Standard Operating Procedures. Employees receive training on these manuals and plans, on the Maryland "Right to Know" law, and the OSHA Bloodborne Pathogens Standard. These plans and manuals are distributed or made available to all employees, reviewed annually and updated as needed.

#### Occupational Health Program

The Occupational Health Program at BIOQUAL includes a physical examination prior to beginning actual work. A medical and work history performed by a local specialist who is board certified in Internal Medicine, Preventative Medicine, Tropical Medicine, and in Occupational Medicine and specializes in infectious diseases and occupational health. The physical includes screening with a drug test, a twenty-three-channel blood chemistry profile as well as liver enzyme analysis, complete blood count, HIV and SIV antibody test, and hepatitis and rubella screening profile. Prior to assignment of duties involving animal studies, employees are interviewed by the physician to assess unusual susceptibility to animal associated health risks such as allergies. Persons having acute tuberculosis will not work with any nonhuman primates. Pre-and postemployment serum samples are obtained and tested (see above details on screening). Test results are maintained by the physician's office. BIOQUAL does not routinely bank employee serum samples. All employees are provided the opportunity to participate in an immunization program for such agents as Hepatitis A and B, vaccinia, tetanus, influenza, rabies and any other infectious research agents for which there is an FDA approved effective vaccine. Periodic (annual) serum sampling to assess employee's occupational exposure or immune status with regard to some research agents and regular screening (every 6 months) for tuberculosis are also a part of this program.

The employee Health Monitoring Program includes annual serum testing for employees that are involved in projects that are considered to have potential risk. The monitoring and testing program is modified as required by risk assessments of the current research programs. The test results generated by the health monitoring program are sent to the employee in a confidential manner and also maintained in confidential files in the office of BIOQUAL's health consultants.

#### Safety Training and Procedures

All supervisors at BIOQUAL are required to understand the hazards associated with each job, their potential effects on employees and the supervisor's role in ensuring that employees follow the rules, procedures, and work practices for controlling exposure to hazards. Employees are informed of potential hazards in the workplace, including additional hazards associated with pregnancy, illness, and decreased immunocompetency, possible zoonoses, (including *Macacine herpesvirus 1*) and of safe work procedures, including personal hygiene. All of this is taught both during initial training and through reinforcement and in-house training held regularly during the year, especially to those employees potentially exposed to non-human primates. When and where personal protective equipment is required, employees are informed of the requirement and the reasons for it. They are also trained to know the limitations of the equipment and how to maintain and use it properly. Safety training demonstrations and videos on various aspects of laboratory and general safety are periodically shown to employees. Each animal room door has signs indicating the pathogen present in the room, protective clothing required, and other precautions to be observed when entering the room.

To ensure awareness and control of risks, BIOQUAL has designed and implemented the aforementioned Health and Safety Manual, Chemical Hygiene Plan, Radiation Protection

Program, BSL3/ABSL3 Biosafety Manual, and an Exposure Control Plan. BIOQUAL incorporates the recommendations in the CDC-NIH "Biosafety in Microbiological and Biomedical Laboratories (5<sup>th</sup> edition, 2009)" with its safety plans and manuals and Standard Operating Procedures.

Regarding *Macacine herpesvirus 1*, BIOQUAL has developed specific Standard Operating Procedures (SOP's) and training programs that provide information regarding actions to be taken in case of possible exposure to *Macacine herpesvirus 1* which meet or exceed the CDC Guidelines and other medical advisory information. Specific procedures have been developed in consultation with the Occupational Health Physician and described in detail in BIOQUAL SOP's and during the employee training programs.

Material Safety Data sheets are maintained in the Administrative Office of each facility, and in central locations in all facilities; employees are required to review the MSDS for agents they will be working with. The members of the Health and Safety Committee and the Biosafety Officer are points of contact whenever a question of health or safety arises.

A Respiratory Protection Program is also in place at BIOQUAL. Any employee who is required to wear a respirator in the course of their work at BIOQUAL receives a fit-test for the respirator they will be wearing. This fit test is done by BIOQUAL's occupational health consultants. Regular in-house training on proper use and maintenance is part of the program.

Employees that are not generally allowed access to animals are still included in the Occupational Health Plan. These employees may need to access an animal room or area for a brief period of time. In this instance, they are briefed on appropriate precautions and provided with appropriate, required PPE and then permitted in for the limited amount of time needed. A member of the animal care staff is available for escort. If extensive or prolonged work is needed to be done (e.g. maintenance) then animals are removed from the room and the area cleaned and decontaminated.

#### Accident Investigation

BIOQUAL requires the completion of an Accident Report in the event of an accident and/or incident resulting in death, traumatic injury, and/or occupational exposure or illness. All accidents require an investigation as to the cause and possible actions required to prevent a recurrence. In the event of an occupational exposure, the employee is referred to the physician for evaluation, treatment, counseling and follow-up as required. BIOQUAL also has a form, Office Form No. 032-1: "Incident Accident Report No Injury Involved," for employees to report and document to the Health and Safety committee and to the administration potentially dangerous situations that need to be addressed. These reports are followed up in exactly the same fashion as an Accident Report.

**F. The total gross number of square feet in each animal facility (including each satellite facility), the species of animals housed there and the average daily inventory of animals, by species, in each facility is provided in the attached Facility and Species Inventory table.**

The three facilities housing animals for BIOQUAL, Inc. are Parklawn Drive, Piccard Drive, and Research Boulevard. The information requested is provided in the attached chart, Section X.

**G. The training or instruction available to scientists, animal technicians, and other personnel involved in animal care, treatment, or use is as follows:**

#### **IACUC New Member Orientation**

Once a new member has been appointed to the IACUC by the Institutional Official, that individual will complete the following prior to bring provided proposals for review.

1. Read and understand IACUC Policies and BIOQUAL SOPs
2. Complete the BIOQUAL Animal Ethics Training
3. Complete the BIOQUAL Post Approval Monitoring Training
4. Meet with IACUC administrative staff to
  - a. Review the Animal Care and Use Program by following the OLAW Checklist for Semi-Annual Program Review
  - b. Discuss questions regarding policies and SOPs
  - c. Review facility statistics and most current facility inspection reports
  - d. Formally discuss the process of protocol proposal approval

### **IACUC Training**

Furthermore, each IACUC member will be provided with a copy of the following:

PHS Policy for the Humane Care and Use of Laboratory Animals  
 The National Research Council (NRC) Guide for the Care and Use of Laboratory Animals  
 The ARENA/OLAW IACUC Guidebook  
 The AVMA Guidelines on Euthanasia  
 A copy of this Assurance  
 The most recent copy of this Institution's AAALAC site description

All members of the IACUC will have access to the American Association of Laboratory Animal Science website learning library, and will complete the IACUC core curriculum.

All IACUC members will visit the OLAW website at least semiannually and will complete the tutorial module (initial visit) and will familiarize themselves with other pertinent modules and information, e.g. OLAW FAQs, Policies and Law, Guidance, Educational and other Resources.

Training will be included in the quarterly IACUC meetings.

Note: Attendance at an IACUC 101/102; IACUC Advanced; PRIM&R/ARENA IACUC meeting or similar training course may be substituted for any of the above listed IACUC training sessions.

### **Animal Care and Use Personnel Training**

The training or instruction available to scientists, animal technicians, and other personnel involved in animal care, treatment, or use is as follows:

All personnel performing research procedures using animals must be identified in the Institutional Animal Care and Use Protocol. A description of each individual's qualifications, experience and/or training with the specific animal species, model and procedures must be provided for IACUC review upon request. Any person needing additional protocol-specific training will be identified during the review process and such required training will be a condition of approval of the protocol.

All persons involved in animal care and use will be required to attend an orientation seminar given by the IACUC Chair, veterinarian or other qualified individual(s) which covers the laws and regulations covering laboratory animal care and use with the emphasis on the contents of the Guide and the 3R's. The training includes instruction on research or testing methods that minimize the numbers of animals required to obtain valid results and limit animal pain or distress as well as other requirements delineated in 9 CFS, Part 2, Subpart C, Section 2.32 (c).

Specifically, training and instruction of personnel must include guidance in at least the following areas:

Humane methods of animal maintenance and experimentation, including:  
 The basic needs of each species of animal

Proper handling and care for the various species of animals used by the facility  
Proper pre-procedural and post-procedural care of animals; and  
Aseptic surgical methods and procedures

The concept, availability, and use of research or testing methods that limit the use of animals or minimize animal distress;

Proper use of anesthetics, analgesics, and tranquilizers for any species of animals used by the facility;

Methods whereby deficiencies in animal care and treatment are reported, including deficiencies in animal care and treatment reported by any employee of the facility. No facility employee, IACUC member, or laboratory personnel shall be discriminated against or be subject to any reprisal for reporting violations of any regulation or standards under the Act; and

Utilization of services (National Library of Medicine, etc.) available to provide information:

- On appropriate methods of animal care and use
- On alternatives to the use of live animals in research
  - That could prevent unintended and unnecessary duplication of research involving animals; and
  - Regarding the intent and requirements of the Animal Welfare Act and USDA-APHIS Regulations

On-line training may be used and accepted in lieu of in-house training. Any use of on-line training to fulfill training requirement must be approved by the IACUC. Approval and completion of on-line training must be documented.

Specialized Training: Training in experimental methods, for instance for specific animal manipulations and techniques in the care of new or nontraditional laboratory animal species, will be conducted based on the types of research being conducted and the species being used at the institution.

Note: For investigators transferring from other facilities at which they have received similar training, verification of previous training may be accepted by the IACUC in lieu of specific BIOQUAL required training. Acceptance of previous training in lieu of the Institution's training is solely at the IACUC's discretion.

In addition, the training program at this Institution includes the following:

- 1) Review of Standard Operating Procedures (SOPs): Newly hired personnel are required to read, understand, and become familiar with the SOP's relevant to their activities prior to the start of work in that area. All personnel are required to review the SOP's on at least an annual basis.
- 2) Newly hired personnel or individuals being assigned new procedures initially work with experienced personnel and/or under supervisors to help ensure that the 'trainee' understands and is capable of performing assigned duties. Since the number of staff members who work with animals is relatively small, the staff works in several areas which results in significant cross-training. Also since BIOQUAL operates in only three facilities and in limited space, senior personnel continually work with and observe less senior personnel, thereby providing continuous review of employee performance and, if necessary, additional training.
- 3) AALAS training courses: Personnel have strong Institutional support to prepare for AALAS certification at the level of ALAT, LAT or LATg. In house preparation classes are offered on a continually rotating basis; the local AALAS branch (National Capitol Area Branch) offers an intensive one week LATg preparation course which several of this Institution's employees attend

each year; and the local branch also offers scholarships for the exam fee. BIOQUAL reimburses employees for the exam fee, and offers a salary increase for those employees that attain certification.

- 4) Employees have Institutional support to attend (and present scientific information at) the local NCAB/AALAS meeting and the National AALAS meeting as well as other applicable scientific meetings throughout the year.
- 5) IACUC members are encouraged to attend the IACUC 101/201 courses offered throughout the year.
- 6) Training for IACUC members and scientists is strongly encouraged to include additional instruction regarding humane animal care and use; minimization of animal numbers required to obtain valid results; minimization of animal pain and distress; animal welfare and research; utilization of laboratory animals which includes information regarding alternatives to the use of animals; prevention of duplication of research; BIOQUAL's whistle blower policy; the three R's; animal health and welfare, humane endpoints; euthanasia policy, use of anesthetic and analgesic agents; zoonoses, allergies; hazards, pregnancy precautions; decreased human immunocompetency; and illness.
- 7) Initially, new IACUC members, scientists, and animal care personnel are provided with copies or access to the policies and SOPs for the BIOQUAL IACUC, PHS Policy for the Humane Care and Use of Laboratory Animals, the National Research Council (NRC) Guide for the Care and Use of Laboratory Animals, the ARENA/OLAW IACUC Guidebook, the AVMA Guidelines on Euthanasia, a copy of this Assurance, and the most recent copy of this Institution's AAALAC site description. In house training programs are provided for all employees regarding a variety of current operational topics of importance and interest, including chemical safety, animal welfare, blood borne pathogens, Select Agent training, etc.
- 8) Specific web site training programs and database searches are used, e.g. Animal Welfare Information Center, for methods that serve as alternative to animals, and for elimination or reduction of procedures that might cause pain or distress.
- 9) Communication with other scientists knowledgeable in the fields of interest is encouraged.
- 10) Participation in seminars discussing animal welfare, animal use, and testing methods that minimize animal distress.
- 11) A training file is maintained for each employee containing dates and topics that include animal care and safety training. Any IACUC member that is not an employee also has a training file.

#### **IV. Institutional Program Evaluation and Accreditation**

All of this Institution's programs and facilities (including satellite facilities) for activities involving animals have been evaluated by the IACUC within the past 6 months and will be reevaluated by the IACUC at least once every 6 months according to PHS Policy IV.B.1.-2. Reports have been and will continue to be prepared according to PHS Policy IV.B.3. All IACUC semiannual reports will include a description of the nature and extent of this Institution's adherence to the PHS Policy and the *Guide*. Any departures from the *Guide* will be identified specifically and reasons for each departure will be stated. Reports will distinguish significant deficiencies from minor deficiencies. Where program or facility deficiencies are noted, reports will contain a reasonable and specific plan and schedule for correcting each deficiency. Semiannual reports of the IACUC's evaluations will be submitted to the Institutional Official. Semiannual reports of IACUC evaluations will be maintained by this Institution and made available to the OLAW upon request.

**(1) This Institution is Category 1 — accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC 000624). As noted above, reports of the IACUC's semiannual evaluations (program reviews and facility inspections) will be made available upon request.**

## V. Recordkeeping Requirements

- A. This Institution will maintain for at least 3 years:
  - 1. A copy of this Assurance and any modifications made to it, as approved by the PHS
  - 2. Minutes of IACUC meetings, including records of attendance, activities of the committee, and committee deliberations
  - 3. Records of applications, proposals, and proposed significant changes in the care and use of animals and whether IACUC approval was granted or withheld
  - 4. Records of semiannual IACUC reports and recommendations (including minority views) as forwarded to the Institutional Official, Dr. Mark G. Lewis.
  - 5. Records of accrediting body determinations
- B. This Institution will maintain records that relate directly to applications, proposals, and proposed changes in ongoing activities reviewed and approved by the IACUC for the duration of the activity and for an additional 3 years after completion of the activity.
- C. All records shall be accessible for inspection and copying by authorized OLAW or other PHS representatives at reasonable times and in a reasonable manner.

## VI. Reporting Requirements

- A. The Institutional reporting period is the calendar year (January 1 – December 31). The IACUC, through the Institutional Official, will submit an annual report to OLAW by January 31 of each year. The annual report will include:
  - 1. Any change in the accreditation status of the Institution (e.g., if the Institution obtains accreditation by AAALAC or AAALAC accreditation is revoked)
  - 2. Any change in the description of the Institution's program for animal care and use as described in this Assurance
  - 3. Any change in the IACUC membership
  - 4. Notification of the dates that the IACUC conducted its semiannual evaluations of the Institution's program and facilities (including satellite facilities) and submitted the evaluations to the Institutional Official, Dr. Mark G. Lewis, CEO of BIOQUAL, Inc.
  - 5. Any minority views filed by members of the IACUC
- B. The IACUC, through the Institutional Official, will promptly provide OLAW with a full explanation of the circumstances and actions taken with respect to:
  - 1. Any serious or continuing noncompliance with the PHS Policy
  - 2. Any serious deviations from the provisions of the *Guide*
  - 3. Any suspension of an activity by the IACUC
- C. Reports filed under VI.A. and VI.B. above should include any minority views filed by members of the IACUC.

## VII. Institutional Endorsement and PHS Approval

### A. Authorized Institutional Official

Name: Mark G. Lewis, PhD

Title: President, Chief Executive Officer and Institutional Official

Name of Institution: BIOQUAL, Inc.

Address: (Street, City, State, Country, Postal Code)

4 Research Court  
Rockville, Maryland USA 20850

Acting officially in an authorized capacity on behalf of this Institution and with an understanding of the Institution's responsibilities under this Assurance, I assure the humane care and use of animals as specified above.

Signature:

(b) (6)

Date: 9/11/2017

### B. PHS Approving Official (to be completed by OLAW)

Neera Gopee, D.V.M., Ph.D., DACLAM, DABT  
Veterinary Medical Officer  
Office of Laboratory Animal Welfare (OLAW)  
6705 Rockledge Drive  
RKL1, Suite 360, MSC 7982  
Bethesda, Maryland 20892-7982  
gopeenv@od.nih.gov

Signature:

(b) (6)

Date: 10-02-2017

Assurance Number: D16-00052 (A3086-01)

Effective Date: 10-02-2017

Expiration Date: 10-31-2021

## VIII. Membership of the IACUC

Date: June 16 <sup>th</sup> , 2017			
Name of Institution: BIOQUAL, Inc.			
Assurance Number: A3086-01			
<b>IACUC Chairperson</b>			
Name*: W. L. Wagner			
Title*: Director, IACUC Chair			Degree/Credentials*: DVM
Address*: (street, city, state, zip code) 12301 Parklawn Drive Rockville, MD 20852			
E-mail*: wwagner@bioqual.com			
Phone*: (b) (6)		Fax*: (b) (6)	
<b>IACUC Roster</b>			
Name of Member/ Code**	Degree/ Credentials	Position Title***	PHS Policy Membership Requirements****
A	DVM; DACLAM	Attending Veterinarian	Veterinarian
(b) (6)			Veterinarian
C	PhD	PhD, PI, Researcher	Scientist
(b) (6)			Veterinarian
(b) (6)			Non-Scientist, Non-affiliated
(b) (6)			Member
(b) (6)			Member

\* This information is mandatory.

\*\* Names of members, other than the chairperson and veterinarian, may be represented by a number or symbol in this submission to OLAW. Sufficient information to determine that all appointees are appropriately qualified must be provided and the identity of each member must be readily ascertainable by the institution and available to authorized OLAW or other PHS representatives upon request.

\*\*\* List specific position titles for all members, including nonaffiliated (e.g., banker, teacher, volunteer fireman; not "community member" or "retired").

\*\*\*\* [PHS Policy](#) Membership Requirements:

<i>Veterinarian</i>	veterinarian with training or experience in laboratory animal science and medicine or in the use of the species at the institution, who has direct or delegated program authority and responsibility for activities involving animals at the institution.
<i>Scientist</i>	practicing scientist experienced in research involving animals.
<i>Nonscientist</i>	member whose primary concerns are in a nonscientific area (e.g., ethicist, lawyer, member of the clergy).
<i>Nonaffiliated</i>	individual who is not affiliated with the institution in any way other than as a member of the IACUC, and is not a member of the immediate family of a person who is affiliated with the institution. This member is expected to represent general community interests in the proper care and use of animals and should not be a laboratory animal user. A consulting veterinarian may not be considered nonaffiliated.

*[Note: all members must be appointed by the CEO (or individual with specific written delegation to appoint members) and must be voting members. Non-voting members and alternate members must be so identified.]*

## IX. Other Key Contacts (optional)

If there are other individuals within the Institution who may be contacted regarding this Assurance, please provide information below.

<b>Contact #1</b>	
Name: Wendeline L. Wagner, DVM	
Title: IACUC Chair	
Phone: (b) (6)	E-mail: wwagner@bioqual.com
<b>Contact #2</b>	

(b) (6)

## X. Facility and Species Inventory

Date: June 16 <sup>th</sup> , 2017			
Name of Institution: BIOQUAL, Inc.			
Assurance Number: A3081-01			
Laboratory, Unit, or Building*	Gross Square Feet [ <i>include service areas</i> ]	Species Housed [ <i>use common names, e.g., mouse, rat, rhesus, baboon, zebrafish, African clawed frog</i> ]	Approximate Average Daily Inventory
(b) (4)	54,200	Macaque monkey	725
		Mouse	15
	30,000	Macaque Monkey	602
		Squirrel Monkey	6
		African Green Monkey	12
		Mice	640
		Hamster	7
		Rat	5
		Ferret	122
		Rabbit	25
	24,000	Macaque Monkey	685
	Pigtail Monkey	1	
	African Green Monkey	14	

\*Institutions may identify animal areas (buildings/rooms) by a number or symbol in this submission to OLAW. However, the name and location must be provided to OLAW upon request.

## XI. Organizational Flowchart

