

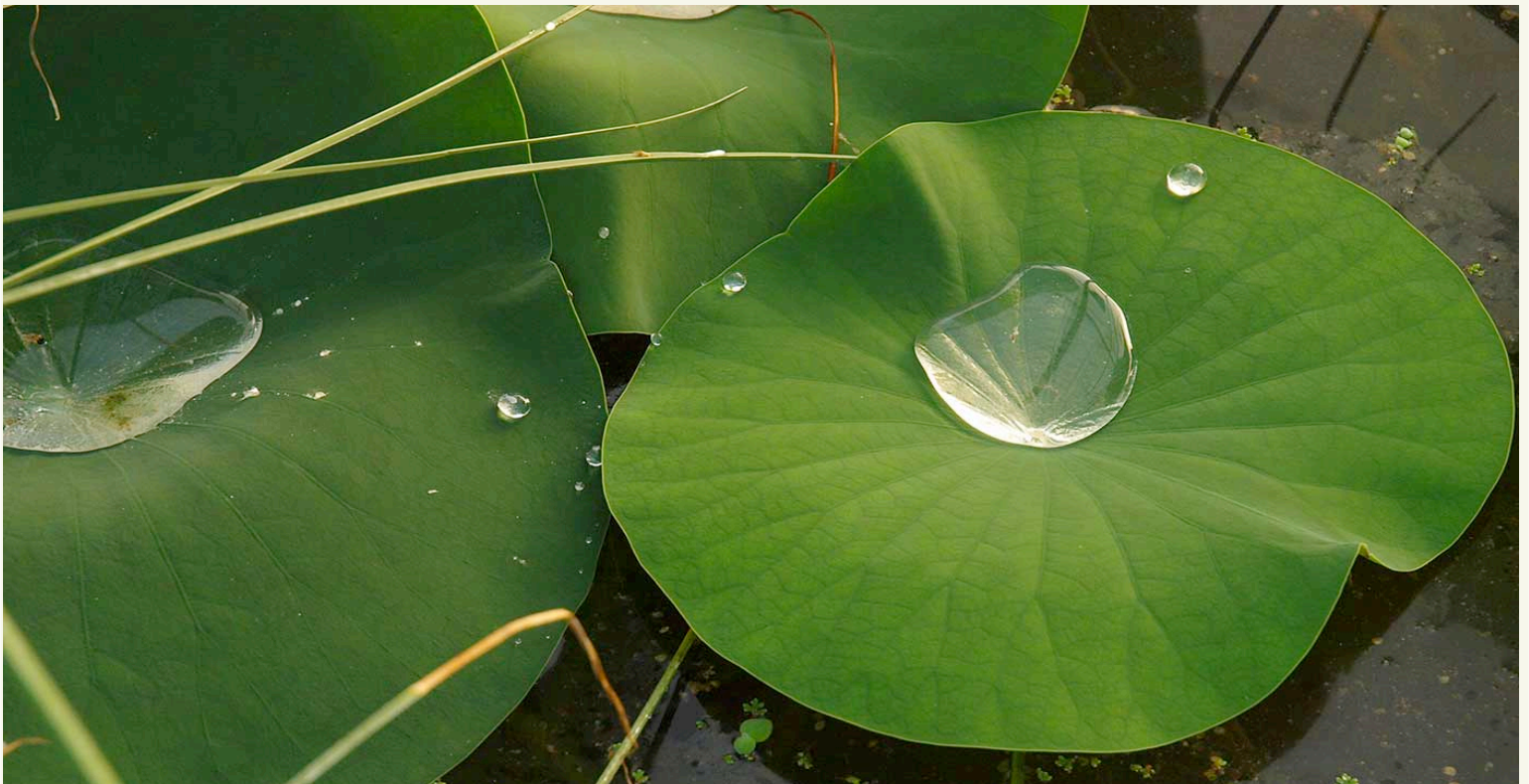
September 2017



# **Biotech Research Laboratories, Inc**

## **Statement of Capabilities**

Updated September 2017



# BIOTECH RESEARCH LABORATORIES, INC.

## CANNABINOIDS

ANALYSIS • DEVELOPMENT • PRODUCTION

CERTIFIED GOOD MANUFACTURING  
PRACTICE (CGMP)

CONSULTING CONTRACT  
RESEARCH & BIOMEDICAL  
PROGRAM MANAGEMENT

HUMAN CLINICAL TRIALS

## Supercritical Fluid Chromatography

### Supercritical fluids

- Occur **above** a **critical** temperature and a **critical** pressure,
- Show both gaseous and liquid properties for
  - Density
  - Diffusion coefficient and
  - Viscosity
- Are very good solvents
- Are frequently cheap, innocuous, non-toxic
- Can easily be removed by evaporation
- Give GC/LC hybrid behaviour – make great mobile phases



Source <http://www.selectscience.net/products/analytical-preparative-sfc-instrument/?product=12418>

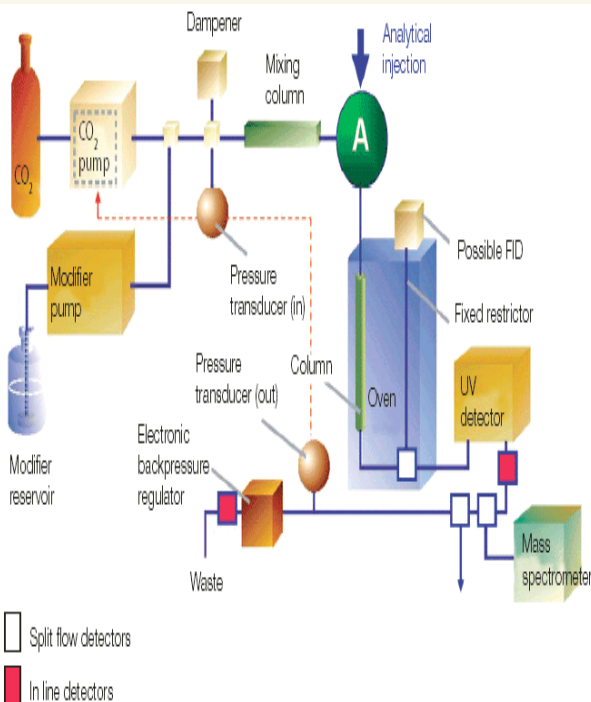
### SFC is particularly useful for analytes that are:

- Non-volatile
- Easily thermally-decomposed and/or
- Unsuitable for spectroscopic or electrochemical detection and thus cannot be analysed by GC or HPLC

Created with MindGenius Business 2009/08

## ANALYTICAL TESTING SERVICES:

- ✓ PHARMACEUTICAL GRADE
- ✓ MARIJUANA MICROBIOLOGICAL
- ✓ CONTAMINANTS ANALYSIS MYCOTOXINS
- ✓ HEAVY METALS PESTICIDES CHEMICALS
- ✓ RESIDUAL CANNIBINOID PROFILING
- ✓ NUTRITIONAL ANALYSIS & DIETARY
- ✓ LABELING NUTRITION FACTS LABELING
- ✓ ENSURE A COMPASSIONATE AND ETHICAL APPROACH TO PROVIDING POSITIVE PATIENT CARE OUTCOMES FOR THE MEDICALLY NEEDY



Analytical SFC diagram

## Company Overview

### Program Mission

The mission of Biotech Research Laboratories, Inc. Medical Marijuana Program is to create Coalitions for Medicinal Cannabis Research and Education that conduct rigorous scientific research, provide education, disseminate research, and to guide policy development for the adoption of a statewide policy on ordering and dosing practices for the medicinal use of cannabis.

### Program Description

The cultivation plan of a comprehensive hydroponic cannabis growing process. The entire plant growth process is illustrated in diagrams that travels through the various stages of a cannabis plant's development as it moves down the supply chain from seed to patient. The complete process consists of nine (9) steps, the first seven (7) of which are referred to as the plant production process, and the remaining two (2) are included as a part of the overall supply chain process.

### Program Scope

Our cultivation overviews depict two different types of flows. One that shows an anticipated supply chain flow from seed to sale, and the other that shows production of male plants or disposing of contaminated plants.

The cultivation overview includes a detailed explanation of each stage of the plant production and supply chain process, including:

- Cloning
- Vegetation
- Flowering
- Harvesting & Drying
- Trimming
- Curing
- Packaging
- Distribution

Quality control and testing are included in our product safety plan, and utilizing plant matter for manufacturing edibles and concentrates are covered in our edibles and concentrates plan.

## Program Objectives

The overall program objectives:

- Promote a rational and compassionate approach to Florida's emerging medical marijuana markets
- Develop a high level of trust and familiarity between industry interests and the National Health organizations, such as sickle cell foundation and America Cancer Association (ACA)
- Supports Medical Marijuana Business Association of Florida (MMBAFL) vision to receive safe access to quality medicine products
- Provide clinical research that education businesses and individuals interested in participating in a responsible way in medical marijuana health care in the States of Florida, Alabama, Arkansas, Georgia, Mississippi, Maryland, Oklahoma

Ensure a compassionate and ethical approach to providing positive patient care outcomes for the medically needy

## Technology Overview

The technology and facility designs is to simplify and streamline the hydroponic growing process. The hydroponic method gives a plant exactly what it needs, when it needs it, in the amount that it needs, allowing the plant to be as healthy as is genetically possible while also meeting sustainability objectives.

The hydroponic design section includes topics on:

- Hydroponic Facility Setup
- Advanced Lighting Setups
- Organic Growing Medium
- Propagation & Cloning
- Innovative Growing Systems
- Organic Nutrients & Additives
- Non-Harmful Pest & Disease Control
- Post-Harvest
- Environmental Controls
- Irrigation Systems & Controls

## Research Objectives

- The drug's chemistry must be known and reproducible
- There must be adequate safety studies
- There must be adequate and well-controlled studies proving efficacy
- The drug must be accepted by qualified experts
- The scientific evidence must be widely available

## Genetic Research

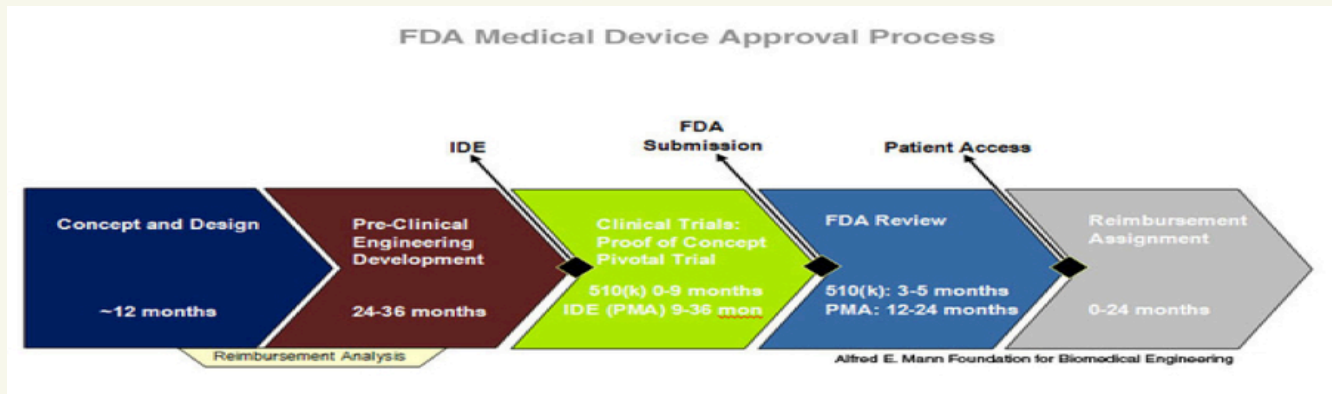
- Research focused on the genetics of cannabis
- In-house tissue culture laboratory enables research
- In-house compartmentalized breeding rooms

## Formulations

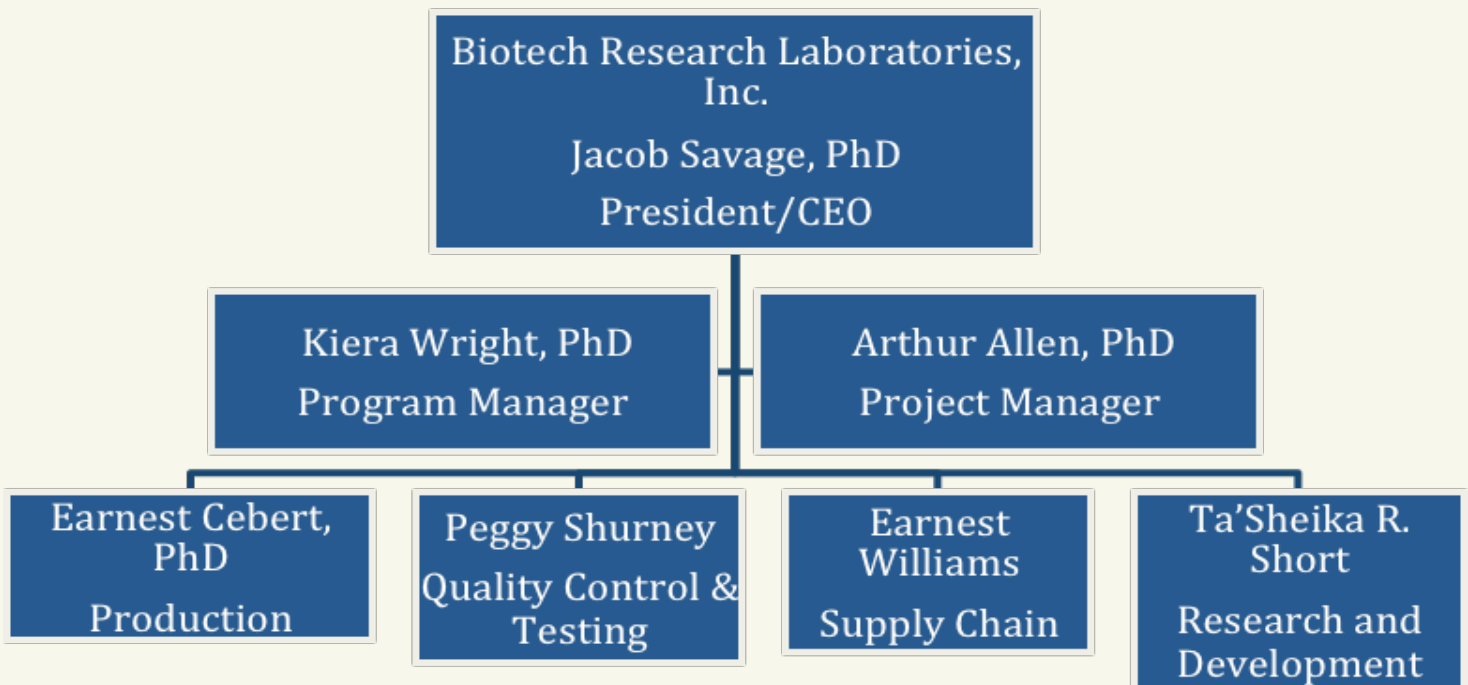
Breadth of proprietary medical cannabis-derived products:

- Flower - ultra clean strains with a variety of cannabinoid profiles
- Concentrates - unique, clean oils for targeted medicinal applications
- Infused Products - edibles and topicals for targeted medicinal applications
- Pharmaceuticals, nutraceuticals, and over-the-counter medicines
- Licensing opportunities

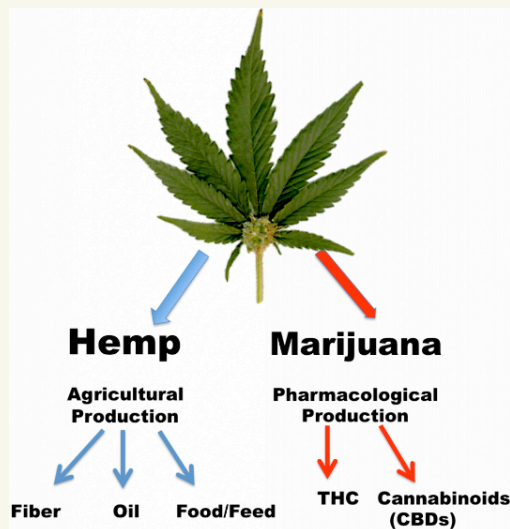
## Project Schedule and Milestones



## Project Research Team Roles and Responsibilities







## Deliverables

Production and distribution of safe cannabis product classes including edible and infused products

Produce cannabinols products that have little or no tetrahydrocannabinols the main psychoactive compound

Increase participation Arkansas' patients in clinical research

Tools for importing and exporting real time data collection

Promote a rational and compassionate approach to Arkansas 'emerging medical marijuana market

## Product Overview- Brands

### Brand: Biotech Cannabis

- "A" grade and bulk brand to compete with top shelf and economical producers
- Strain Types - CBD, Indica, Sativa, Hybrid
- High THC, low THC, and high CBD strains
- Unique, nutrition-style label



### Brand: Revolution Everyday

- Nonconforming, bulk brand



### Concentrates



### Brand: Elements

- Bubble Hash
- Hashish
- Rosin
- Kief

### Brand: Cosmos

- Moon Rocks
- Asteroids
- Star Dust

### Brand: Zero

- Shatter
- Live Resin
- Wax
- Crumble
- CO2 Oil

### EDIBLES

Freedom Fudgies" - chocolate fudge chews

- "Cannapillars"- gummy worms
- "Goobies" - fruit chews
- "Kushie Caramels" - caramel chews
- Hot Cocoa



### MEDICAL FORMULATIONS

#### Brand: Spectra

- "Canna-Mist" - mouth spray
- "Complete" raw supercritical CO2 oil
- Pharmaceuticals
- Over-the-counter medicines
- Nutraceuticals



## BIOTECH VALUES & PRINCIPLES

Biotech Research Laboratories Inc. founded in 1986 as an Environmental testing and consulting firm. Biotech Governmental Services was recently established with Governmental senior executives as results of Federal retirements and downsizing. This experience team is a global management consulting firm that uses a performance based approach to shift the risk to us and achieve long-term, sustainable changes for our public-sector clients.

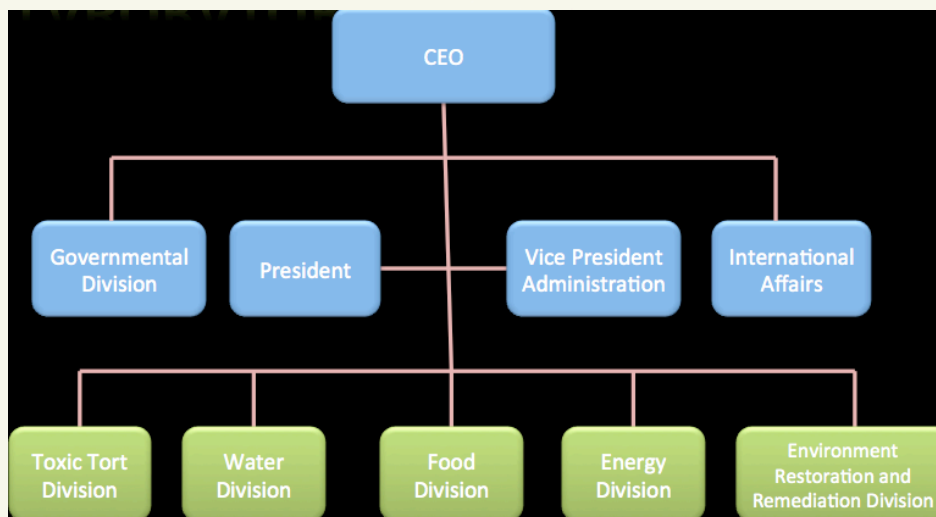
Biotech embraces and encourages innovation, creativity, and diversity in a professional environment. We hold ourselves to the highest of standards and are committed to delivering on our promises.

Biotech staff and consultants are deeply committed to upholding the values embodied by the firm, including:

- » Global collaboration, strategically alliances' and partnerships
- » Respect for the ideas and viewpoints of clients and each other
- » Humility recognizing that challenges continually evolve
- » Collaboration through every step of the consulting process
- » Optimism for a positive outcome no matter how great the challenge
- » Integrity in all of our words and actions
- » Results-focused to ensure sustainable change

## BIOTECH PARTNERSHIPS

BIOTECH RESEARCH LABORATORIES, INC is an experienced biomedical research firm, rapidly growing in the areas of sustainable communities and medical marijuana. Our goal is to collaborate with biomedical and energy partners in providing clean useable water and renewable energy for communities and villages. Through collaborative partnerships with local governments, non-profits, volunteer organizations and community leaders, and biomedical, water and energy partners who have developed effective technologies that produce alternative products or processes, we will be able to help provide clean water and energy for people covering a broad demographic. Nearly 1 billion people suffer needlessly without access to safe water. We're changing this - one village at a time. Biotech will design & build clean water system using 21st century technologies to provide water, and unlock human potential. Water provides food, health, employment, community livelihood and opportunities for peace, and the ability to mitigate related environmental and political crisis.



## Biotech's Collaborative Strategy

Biotech is committed to developing partnerships with governments, communities and villages, investors, and non-profits such as the Global Coral Reef Alliance, The Sickle Cell Foundation of Georgia, The U.N. Global Conference on Sustainability, and Save the Rain, the Bren School of the Environment and Engineers Without Borders, Doctors Without Borders and contributing research partners.

Biotech is enlisting the support of investors, technology and energy partners, local, state, national and international governments and organizations, corporate support, academic partnerships, and international networking, to implement biomedical regulation and policy changes.

Biotech Research Laboratories in collaboration with Sickle Cell Foundation of Georgia, Nolatown, Citi Apothecary Services, Inc. (CASI) and IVA Management Consulting, was formed to collaborate, develop and combine expertise for the sole purpose of seeking out prime and sub-contracting opportunities in support of the development and compliance of new-market entries into the medical cannabis industry. This model is designed to (1) develop and team with a network of businesses, consultants and professionals in the cannabis industry to advise new-market entries and (2) review current processes, analyze data for trends, provide strategic planning and identify viable opportunities that results in job creation, economic development and sustainability, (3) Therapeutic Research & Product Development (4) promote workforce development and training programs and (5) support lobbying efforts for sensible drug policies.

The primary objective of this collaboration is to develop a model that will promote the recommendation of marijuana for therapeutic use for purposes of debilitating medical conditions, including Cancer, Epilepsy, Positive status for human immunodeficiency virus, Acquired immune deficiency syndrome, Post-traumatic stress disorder, Amyotrophic lateral sclerosis, Crohn's disease, Parkinson's disease, Multiple sclerosis, Chronic nonmalignant pain and Sickle Cell Disease, create a coalition with 1890 Land-Grant Universities to address Medical Marijuana Programs that are forming in other states, to support Land-Grant College Cultivation Programs and to promote Research & Development Partnerships that connect to NIH contracts, as well as, Israeli interest in innovative cannabinoids research.

Our internal goal is to continue to establish partnerships with organizations and companies who share in our sense of collaboration, empowerment with accountability and long-term relationships to provide research & development, education and build an innovative, but cost-effective bridge to develop new products, create employment opportunities, economic growth and sustainability for our communities, our cities and our universities.

We accomplish this undertaking by utilizing an integrated program that includes strategic planning, management, commitment, organizing professionals with backgrounds that represent talents of the highest quality who bring major value to the table in their respective fields, as well as utilizing our pharmaceutical experience, our current and past business and political affiliations and by leveraging relationships, internal expertise and external market sources by closely working and collaborating with experts, consultants and consumers all designed to achieve the primary objective.



## About the President



Dr. Jacob Savage is a national and internationally renowned Microbial Biochemist, innovator, environmental executive leader, lecturer, and President of Biotech Research Laboratories, Inc. He also serves as Chief Financial Officer of A. Savvy Entertainment, LLC. His executive experiences include President of International Production & Development (IPD), a SBA (8A) manufacturer of chemical specialty products. IPD was founded by Jacob Savage, Ph.D. and James Thompson, Ph.D. with plant location in Huntsville, Alabama. Under Dr. Savage's chief executive leadership, IPD grew to include sales and distribution centers in Birmingham, Montgomery, Atlanta, and Costa Rica. Dr. Jacob Savage's co-founder, Dr. James Thompson, was second to "Jovan" to have musk oil fragrance on the market.

Dr. Savage has made numerous scientific discoveries in his 42 years of service. Dr. Savage has been appointed and serves on many boards which included but not limited to the Advisory Board of the U.S. Department of Commerce for International Trade Policy, Board of Directors of Middle Tennessee Regional Minority Purchasing Council, Board of Directors of National Association of Minority Business Enterprise, a Brain Trust Member of the U.S. Congressional Committee on Human Health, and President Reagan's advisory board for Minority Business Development. He has coordinated several successful expert witness teams on toxic tort litigations including the Triana's DDT landmark case of 1979.

He has been the recipient of numerous awards and honors. Among these is the NASA Technical Innovation Award, the National Association for Equal Opportunity in Higher Education Distinguished Alumni Award, the Who's Who Among Black Americans, and the Middle Tennessee Regional Purchasing Council Distinguished Service Award. Dr. Savage has over forty years of leadership experience in environmental related projects such as the Current President of Biotech Research Laboratories, Inc.

Biotech has provided services to over 200 public and private clients. Dr. Savage's focus is on innovative low cost economic alternative strategies for benefiting mankind and improving our society. Dr. Savage is an Assistant Professor of Microbiology at Alabama Agricultural & Mechanical University. Dr. Savage has a Ph.D. in Microbiology from Rutgers University and Post Doctoral Studies at Stanford Research Institute. He is married to Dr. Annie C. Savage and is the father of Amoi Alyson-Ariel Savage and Alva Johnson.

## *Experienced Management Team*

**DR. JACOB SAVAGE** is a national and internationally renowned Microbial Biochemist, innovator, environmental executive leader, lecturer, and Chairman and Chief Executive Officer of Biotech Research Laboratories, Inc. His executive experiences include President International Production & Development, Advisory Board U.S. Department of Commerce for International Trade Policy, Board of Director Middle Tennessee Regional Purchasing Council, Board Director National Association of Minority Business Enterprise and Brain Trust member US Congressional Committee on Human Health. His fields of specialty include environmental property assessment, environmental abatement, environmental carcinogenic and mutagenic testing, fermentation technology, enzyme engineering, food technology, and biomedical engineering. Dr. Savage has over thirty years of leadership experience in environmental related projects including serving as Program Director of numerous governmental and private enterprise programs. Dr. Savage focuses innovative on low cost economic alternative strategy for benefiting mankind and improving our society. Dr. Savage has PhD in Microbiology, Rutgers University and Post Doctorial at Stanford Research Institute.



### **VICE PRESIDENT RESEARCH AND DEVELOPMENT**

**TA'SHEIKA SHORT** is an alumna of Alabama A&M University where she received her Bachelor's of Science degree in biology, with a minor in chemistry and her Master of Science Degree (Microbiology). As a graduate assistant at Alabama A&M University she proctored laboratory and classroom lectures in the areas of General Biology, Analytical Chemistry (Lab) and Chemistry. Graduate research study included focus on microbial genetics and replication, public health microbiology, food technology, "The Viability of Diatoms and Clamydomonas on Mars" and production processes.

Ms. Short worked on a number of federal research grant proposal through Cooperative Extension System and HCOP-MPA (Health Careers Opportunity Program- Medical Professionals Assistance) at Alabama A&M University.

Ms. Short's professional career has included roles as a grant writer, researcher, and chemist. As a grant writer she assisted in drafting grants and proposals for environmental laboratory services to clients in both the private and governmental sectors; lead various projects while providing technical and policy analysis for each contract similar to that which is required by RCRD enforcement and policies; analyzed and collected data that support research findings; advise on policy issues according to the National Environmental Policy Act (NEPA); and strategically planned and organized each assigned project.



## *Experienced Management Team*

As Chemist, Ms. Short contributed to the Standard Operating Procedures creation and new serialization system for newly installed dissolution baths. She lead projects alongside Environmental Health and Safety to identify and eliminate laboratory hazards and the implementation of safer lab practices and environmental practices according to the National Environmental Policy Act (NEPA), Brownfields, Polychlorinated Biphenyls (PCBs) acts and contributed to SOP creation and use. She also led her group in mobile phase production and cost reductions.

Her background also includes chemistry and hematology lab processing and genomics testing and synthesis. Her Experience working in a GLP environment included sample handling including small molecule compounds (preparation, dilution, transfer, plating) and biospecimens (preparation, dilution, transfer, plating of plasma, serum, urine, etc.); operating automation equipment (Hamilton Liquid Handling Systems, Agilent Bravo, Scinomix Tube Labeler, Advia CBC and blood chemistry systems, etc.); working knowledge of MS Excel and/or Watson LIMS for data management and analysis; collect/analyze experimental data, produce synthetic genes/recombinant plasmids; proficiency in high throughput gene synth/sequencing/cloning & proficiency w/ Gibson cloning, Golden Gate cloning, DNA Quantification/Purification, PCR/q/PCR, protein chemistry/molecular cloning; and handling, processing, and analyzing bio fluids and specimens.

Ms. Short is currently pursuing a Doctor of Medicine Degree.

### **PROGRAM MANAGER**

#### **Dr. Kierra D. Wright**

After sixteen years, Dr. Kierra D. Wright prepared to transition her home from East Orange, NJ to attend Carnegie Mellon University in Pittsburgh. She earned her Bachelor of Science degree in Chemical and Biomedical Engineering (2005) at CMU, and a Ph.D. in Polymer Chemistry (2012) from Clark Atlanta University. Dr. Wright began her career in research at the Bone Tissue Engineering Center, the University of Pittsburgh Cancer Institute, Carnegie Science Center and Sanofi Pasteur. Dr. Wright's desire to comprehend the science of business led her to the young model program at the Keck Graduate Institute of Applied Life Sciences (KGI) in Claremont, California.

During the 9-month intensive program at KGI she acted as a consultant for USC's Alfred E. Mann Institute for Biomedical Engineering, Alleva-Coppolo, the Children's Hospital of Los Angeles and for Endologix, Inc. in Irvine, CA. Her commitment to these projects have led to a successful product launches, methods to increase operational efficiency, tools for to raise next series funding for an orphan medical device in an emerging market, and a design iteration that leveraged existing technology within an established medical device company, respectively. KGI added the proficiencies of market assessment and strategy, business development, business operations, supply chain management, an awareness of corporate finance, accounting and valuation. Dr. Wright even polished her abilities in bioprocessing, scale-up and project management. Still, she managed to help others by coaching fellow professionals in writing and communication. Dr. Wright earned a Post-doctoral M.S. in Bioscience Management (2013) from KGI.



## *Experienced Management Team*

While attaining her degrees, Dr. Wright attained over ten years applied experience doing cutting edge work within research institutions and industry earning accolades such as being named a National Science Foundation Fellow, and member of the distinguished Beta Kappa Chi Scientific Honor Society. Her work has contributed to insight and products in tissue engineering, drug delivery, and the energy, medical device and pharmaceutical industries. Her applied use of expertise in nanotechnology, drug and business development, and global supply chain management make her a value add throughout the lifecycle of any life science product. Her passion and experience in one word is commercialization.

Dr. Wright joined Endologix shortly after graduating from KGI and designed a position that allowed her to work in the departments of Quality, Manufacturing/Operations, and Marketing before joining the New Product Development division of R&D. For her stellar work, within three years she has received two promotions, two awards for exceptional contribution to commercializing the company's flagship product, earned two Lean Six Sigma certifications, and completed two advanced Minitab statistical trainings for Design of Experiments and Product Reliability. When not performing at work, Dr. Wright completed an Executive Development Program at Michigan State University in Global Supply Chain Management.

Dr. Wright has also spent time nurturing her passion for education and forestry. She completed the Ella Baker Childcare Training Institute program for curriculum development, and applied it to urban K-12 education in Pittsburgh, Atlanta and her hometown of East Orange. She is also an avid volunteer for major and local humanitarian organizations across the United States. One memorable effort led to a land conservation grant for Healing Acres, farm of the legendary Helen J. DuBose. Dr. Wright has also played active roles in professional organizations like the National Society of Black Engineers, the Society of Women Engineers and the American Chemical Society.

Dr. Kierra D. Wright is now developing clinical pharmaceuticals in greater Allentown, PA for Particle Sciences, Inc., a Lubrizol Company. While rewarded by the impact she has on so many lives she is most thankful for the rewards of motherhood and the joy she gets making memories with those she loves.

### **PROJECT MANAGER**

**Arthur L. Allen, Ph.D.**

#### **Education**

- Doctor of Philosophy 1971 - University of Illinois - Urbana, Major: Plant Physiology & Soil Chemistry
- Master of Science - 1968, Oklahoma State University - Major Soils

Bachelors of Science - 1966, University of Arkansas at Pine Bluff - Major - Agriculture



## *Experienced Management Team*

- **Employment History**

- July, 2000 to present -Professor - Director of the University's Geospatial Information Technology Program & Chesapeake Water Quality Center-University of Maryland Eastern Shore
- January 1996 - 2000-Chairman, Department of Agriculture & Associate Research Director - 1890 Programs – University of Maryland Eastern Shore **Selected Funded Projects:**

1. Establishing a Living Marine Resources Cooperative Center. Funded by NOAA/Department of Commerce. Served as Core Grant writer with three others. Grant funded for \$7.5 Million/5 years.
2. Managing Drainage Ditch Ecosystems to Minimize Nutrient Movement. USDA National Water Quality Initiative Program. Co-Investigator -UMCP- \$530,679 -2003-2006.
3. Development of a Production and Planting Business for Submerged Aquatic Vegetation. \$299,965. NOAA. Principal Investigator –2003-2006.
4. An assessment of Drinking Water Quality Among Under-Served Families in Selected Counties on the Eastern Shore of Maryland and Delaware. USDA National Water Quality Initiative Program. \$89,000. Investigator. 2002-2004.
5. An assessment of Drinking Water Quality Among Under-Served Families in Selected Counties on the Eastern Shore of Maryland and Delaware. USDA National Water Quality Initiative Program. \$174,000. Principal Investigator 2005- 2008.
6. Geo-spatial Information Technology Infrastructure Enhancement. USDA Capacity Building Grants Program. 2004-2006 - \$195,078.
8. Development of a Subsurface Application Technology for Dry Poultry Litter to Protect Air and Water Quality. USDA Capacity Building Grants Program. \$599, 880. 2010-2013. Principal Investigator.
9. Gypsum Curtains: Reducing soluble phosphorus losses from phosphorus-saturated soils on poultry operations. USDA-NRCS Conservation Innovation Grant. 2010. \$1,999, 987 (\$1-million match from Constellation Energy, Inc.) 2010-2013. Principal Investigator.
10. Watershed level examination of urea use as fertilizer, and the production of the biotoxin domoic acid. 2010. USDA Capacity Building Grants Program. 2010-2013. \$499,968. Co-Investigator.



## *Experienced Management Team*

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Development of a Production and Planting Business for Submerged Aquatic Vegetation. \$299,965. NOAA. Principal Investigator –2003-2006.

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Watershed level examination of urea use as fertilizer, and the production of the biotoxin domoic acid. 2010. USDA Capacity Building Grants Program. 2010-2013. \$499.968. Co-Investigator.

## Experienced Management Team

### Selected Refereed Publications:

- \**Mason King*, Ray Bryant, Louis Saporito, Anthony Buda, Arthur Allen, Lindsey Hughes, Fawzy Hashem, Peter Kleinman, and Eric May. 2017. Urea Release by Intermittently Saturated Sediments from a Coastal Agricultural Landscape. doi: 10.2134/jeq2016.08.0304; posted: February 07.
  - \**Mason King*, Ray Bryant, Louis Saporito, Anthony Buda, Arthur Allen, Lindsey Hughes, Fawzy Hashem, Peter Kleinman, and Eric May. July 14, 2017. *Farm Drainage Ditch Sediments Generate Urea*. ACSESS, Alliance of Crop, Soil and Environmental News Digital Library. CSA News.
  - L. E. Marsh, F. M. Hashem, C. P. Cotton, A. L. Allen, B. Min, and M. Clarke. 2016. Research Internships: A Useful Experience for Honing Soft and Disciplinary Skills of Agricultural Majors. NACTA 60:379-384.
  - \**Leonard C. Kibet*, Ray B. Bryant, Anthony R. Buda, Peter J. A. Kleinman, Louis S. Saporito, Arthur L. Allen, Fawzy M. Hashem, and Eric B. May. 2016. Persistence and Surface Transport of Urea-Nitrogen: A Rainfall Simulation Study. doi:10.2134/jeq2015.09.0495.
  - Peter J. A. Kleinman, Clinton Church, Lou S. Saporito, Josh M. McGrath, Mark S. Reiter, Arthur L. Allen, Shawn Tingle, Greg D. Binford, Kun Han, and Brad C. Joern. 2015. Phosphorus Leaching from Agricultural Soils of the Delmarva Peninsula, USA. Journal of Environmental Quality. doi:10.2134/jeq2014.07.0301.
  - Ray Bryant, Arthur Allen, Mark Reiter et al. 2015. Amending Soil Properties with Gypsum Products. Conservation Practice. Standard Code 333. Natural Resources Conservation Service. United States Department of Agriculture. Approved by NRCS in 2015.
7. \**Kibet, L.C.*, R.B. Bryant, A.R. Buda, L.S. Saporito, A.L. Allen, P.J.A. Kleinman, F.M. Hashem, and E.B. May. 2015. Urea persistence and surface transport in a Coastal Plain soil. J. Env. Qual.
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- \**Kibet, L.C.*, L.S. Saporito, A.L. Allen, E.B. May, P.J.A. Kleinman, F.M Hashem, and R.B. Bryant. 2014. A protocol for conducting rainfall simulation to study soil runoff. *J. Vis Exp.* (89), e51664, doi: 10.3791/51664K. Han, P.J.A. Kleinman, L.S. Saporito, C. Church, J.M. McGrath, M.S. Reiter, S.C. Tingle, A.L. Allen, L.Q. Wang and R.B. Bryant. 2014. Phosphorus and nitrogen leaching before and after tillage and urea application. doi:10.2134/jeq2014.08.0326; posted 3.
  - \**L.C. Kibet*, A.L. Allen, C. Church, P.J.A. Kleinman, G.W. Feyereisen, L.S. Saporito, F. Hashem, E.B. May, and T.R. Way. 2013. Transport of dissolved trace elements in surface runoff and leachate from a Coastal Plain soil after poultry litter application, Journal of Soil and Water Conservation. 68(3):212-220.
  - Peter Kleinman, Kristen Saacke Blunk, Ray Bryant, Lou Saporito, Doug Beegle, Karl Czymmek, Quirine Ketterings, Tom Sims, Jim Shortle, Josh McGrath, Frank Coale, Mark Dubin, Daniel Dostie, Rory Maguire, Robb Meinen, Arthur Allen, Kelly O'Neill, Lamonte Garber, Mark Davis, Bobby Clark, Kevin Sellner, and Matt Smith. 2012. Managing manure for sustainable livestock production in the Chesapeake Bay Watershed. Journal of Soil and Water Conservation 67(2):54A-61A.

## *Experienced Management Team*

### **Selected Presentations at Professional Meeting:**

- Arthur Allen, Eric May, Berran Rogers, Sidney Hankerson, Mason King, Fawzy Hashem, Enrique Escobar, Michael Sigrist and Lisa Purnell. UMES to Coach Future Farmers. 2017. *The UMES School of Agriculture & Natural Sciences Ingenuity Magazine*.
- Arthur L. Allen, Amy Collick, Emily MacLauren Bock, Laura Christianson, Ray B. Bryant, Peter J.A. Kleinman, Anthony R. Buda, Eric B. May, Timothy Rosen<sup>7</sup>, Fawzy M. Hashem<sup>8</sup> and Zach Easton. 2016. Evaluating Edge-of-Field and in-Ditch Stratagems to Reduce Nutrient Losses in the Mid-Atlantic Region. ASA, CSA SSSA Meeting. Phoenix, AZ.
- Mason D. King, Sabrina Klick, Eric B. May, Lindsey A. Hughes, Arthur L. Allen, Fawzy M. Hashem, Joseph Pitula, Anthony R. Buda, Lou S. Saporito, and Ray B. Bryant. 2016. Evidence of Urea Release from Intermittently Flooded Agricultural Sediments and Assessment of Microbial Activity. 71st Annual Soil and Water Conservation Society. Poster presentation.
- Eric B. May, Arthur L. Allen, Fawzy M. Hashem, and Ray B. Bryant. Source, Fate and Transport of Urea from Soils to Estuarine Systems: Current Research Synopsis. 2016. ASA, CSA SSSA Meeting. Phoenix, AZ.
- Felix Buabeng, Fawzy M. Hashem, Matias Vanotti, William Brigman, Patricia Millner, Jennifer Timmons, and Arthur L. Allen. 2016. Evaluating the Efficiency of Two Modules of Ammonia Capturing and Recovery Using Gas-Permeable Membranes in a Poultry House. 2016. ASA, CSA SSSA Meeting. Phoenix, AZ.
- Laura Christianson, Allan Hertzberger, Ray B. Bryant, Peter J.A. Kleinman, Arthur L. Allen, Amy Collick, Anthony R. Buda, Eric B. May, Emily MacLauren Bock and Zachary Easton. Design Modification and Early Performance of an in-Ditch Denitrifying Bioreactor. 2016. ASA, CSA SSSA Meeting. Phoenix, AZ.
- Amy L. Shober, Anthony R. Buda, Kathryn Clark, Amy S. Collick, Judy Robinson, Scott Andres, Lee Slater, Dimitrios Ntarlagiannis, J. Thomas Sims, and Arthur L. Allen. Non- Growing Season Phosphorus Losses on the Eastern Shore - New Technologies to Identify the Scope of the Problem. 2016. ASA, CSA SSSA Meeting. Phoenix, AZ.
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- Bryant RB, AR Buda, SS Tzilkowski, EW Boyer, MD King, LC Kibet, AL Allen, and EB May. Terrestrial Sources of Urea to Water in a Mixed Land Use Watershed: Implications for Nitrogen Management. 2nd International Interdisciplinary Conference on Land Use and Water Quality: Agricultural Production and the Environment. Vienna, Austria, September 2015. Oral presentation.

## *Experienced Management Team*

### **Honors & Awards:**

- ➤   •Fellow of the American Society of Agronomy
- ➤   •University System of Maryland Board of Regent's Award for Outstanding Faculty Service in Research. 2011. *This is the highest award awarded to a faculty member among all campuses in the University System of Maryland.*
- ➤   •Outstanding Researcher Award. University of Maryland Eastern Shore – 2012,
- ➤   •Federal Laboratory Consortium - Mid-Atlantic Regional Educational Institution and Federal Laboratory Partnership Award. 2012.
- ➤   •The Joseph Okoh Distinguished Service Award. 2013. University of Maryland Eastern Shore Graduate College,
- ➤   •Outstanding Research Achievement Award. 2011. University of Maryland Eastern Shore Graduate College, and
- ➤   •Association of Research Director's & Association of Extension Administrators-Outstanding Integrated Program Award.

## *Experienced Management Team*

### **MEDICAL RESEARCH DIRECTOR**



**DR. JASON C. WILLIAMS** has over ten years' experience as a biochemical and clinical researcher. Dr. Williams completed a Doctorate of Medicine from Duke University School of Medicine. During his years at Duke, in addition to various clinical responsibilities Dr. Williams has worked on a variety of research projects, including:

- » **Duke University, Department of Infectious Diseases (2010-2013)** - Led an arm of a multi-department DARPA funded study where I was responsible for coordinating data retrieval and was vital in project design and data interpretation for the research team. We examined the complete evolution of cytokine response to influenza infection in humans throughout the full course of disease. I was responsible for analyzing and evaluating both clinical and experimental data and while complying with study protocol and clinical objectives.

Additionally I developed bioanalytical methods for quantitative data analysis.

- » **Duke University, Department of Biochemistry (2005-2008)** - Investigated the catabolic mechanism and regulation of several enzymes involved in the regulation of RNA Polymerase II and their role in normal cellular function and in cancer.
- » **Department of Pharmacology & Cancer Biology (2008-2009)** - Developed novel affinity chromatography techniques followed by mass spectrometry analysis to identify/analyze protein interactions.
- » **Department of Pediatric Nephrology (2008)** - categorized the treatment regimens and outcomes of adults and children as it relates to predictors thru onset of cardiovascular disease in those with kidney disease.
- » **Merck & Co., Inc., Department of Drug Metabolism (2004-2005)** - Investigated human cellular transporters, their substrate interactions, and kinetic rates of enzymatic and cellular function.

Dr. Williams is well suited for clinical research management and coordination, optimizing the clinical trials for best results and strategizing trail progression. Additionally, he has skilled in the use of gene assays, high throughput screening, data analysis, and the use of automated laboratory equipment. His research interests including but not limited to: digital health and global health development, clinical project management and development, biotechnology development, and medical/pharmaceutical consultation.



## *Experienced Management Team*

### **EXECUTIVE ADMINISTRATOR**

**Naureen Qaiyyum** did her Masters in Environmental Studies & Planning from York University, Toronto, Canada. She demonstrated extensive work experience at university setting through maintaining student records, creating and updating student enrollment and financial records, manual file management and record keeping at York University, Toronto. Ms. Qaiyyum is a dynamic and result driven person with progressive experience in database management, members relations, fundraising/project management, advertising sales, research and data analysis, information technology, and office administration. She possesses strong project management skills through managing medium and large-scale projects effectively and achieving targeted goals. She has proven ability to multi-task and complete assigned project within deadline with effective organizational and time management skill. She demonstrated excellent communication skills combined with strong leadership, problem solving and exceptional motivational abilities.



She has demonstrated strong experience in training staff member and supervising volunteers; Ms. Qaiyyum is proficient in Microsoft Word, Excel, PowerPoint, Publisher, Outlook, Lotus Notes, Eudora, Adobe Acrobat, Adobe Photoshop & Illustrator, Dreamweaver, Windows Explorer, database management system (i.e. Student Information System SIS, Raiser's Edge and Income Manager), SAS, SPSS statistical package, text editor (work pad, note pad), scanbook v2.0.9.10.

As Executive Administrator of Biotech Research Laboratories, Inc, Ms. Qaiyyum entered and managed financial information in the database and issued tax reports; prepared and entered bank deposits in the database; project cost and accounting and run monthly, quarterly and annual revenue reports from Raiser's Edge database. The Executive administrator helps support the CEO and other executives, as well as the executive board as needed. Ms. Qaiyyum maintains travel records, as well as arrange meetings and conference calls. She produces status reports, accounting reports and sales reports as well. Additionally, Ms. Qaiyyum handles the administrative functions of the human resources department, as well as make updates to the company handbook and policies. Executive administrators also take part in meetings, coordinate lunches and dinners with business clients, and monitor benefits, payroll, and taxes. She also is being required to support and update databases, run queries, develop database reports, and coordinate mailings. She also handles supplies and the delivery of the company equipment.

### **BIOSTATISTICIAN**



**DR. SALAM KHAN** is an Assistant professor at Alabama A&M University. He is an editorial board member in three different international journals and reviewer for many different national and international journals. He is a mentor for the National Alliance for Doctoral Studies in the Mathematical Sciences. He has been serving as a Judge for nationwide mathematical modeling challenge, SIAM Moody's Mega Math Challenge. Dr. Khan's areas of expertise are Bio Statistics, Mathematical Modeling, Probability Theory, Approximation Theory, Complex Systems Modeling (research involves looking at collective behavior and emergent properties in a wide range of real- world Complex Systems: from the physical, biological, medical domains through to social domains), Mathematical Biology and Dynamical System. Dr. Khan has PhD in Applied Mathematics, University of Electro Communications and Post Doctorial at Florida State University.

# **BIOTECH RESEARCH LABORATORIES, INC.**

## **Water Electrocoagulation Systems**



## Biotech Research Laboratories, Inc. About Us

Biotech Research Laboratories, Inc. provides innovative technology services to treat, recycle, and reuse municipal and industrial wastewater and biosolids. Representing leading edge manufacturers in the field, **Biotech** technologies will:

Treat industrial wastewater containing heavy metals, cyanide, BOD, COD, Phosphorous, Fats, Oil, and grease.

Treat and convert municipal wastewater into clean water for reuse.

Treat commercial wastewater to meet discharge requirements for BOD, COD, and phosphorous.

### Unique and Proven Waste Treatment Technologies

Biotech represents the following innovative companies, offering unique and complementary waste treatment technologies:

Electrocoagulation (EC) wastewater treatment modules apply an electric charge to treat and clean waste water as it flows over iron slats. Replacing chemical agents in the "coagulation" process of removing waste from water, EC uses electricity to shock the water and separate the toxins and heavy metals to be easily filtered out. Elements such as BOD (bacteria) and phosphorous have been effectively removed by as much as 99%. Some of the companies using EC include Kaiser, Tyson Foods, Swift, Chevron, Toshiba, Samsung, and Intel. Recently Tyson Foods installed a 500 gallon per minute unit in their Midwest facility to treat chicken processing wastewater.

Converting trash to energy, the [Organic](#) Product Solution is a ultra-high temperature unit which "disintegrates" tires, sewage, plastic and trash. This process involves the application of intense, indirect thermal energy in the absence of oxygen which reduces the material to a combustible gas and a non-hazardous inorganic material. The gas can be used directly or power an electric generator.

The goal of **Biotech** is to bring effective environmental solutions to municipal, commercial, and industrial sectors of the community. We bring the ability to properly treat and recycle municipal, commercial and industrial wastewater, and convert trash, sewage, and other waste streams into fuel and electricity; all the while reducing operating costs up to 90%.

Our markets include:

- liquid wastewater treatment plants and disposal facilities
- brewery and beverage production
- dairy, poultry, hog and fish processing
- truck and train washing
- textile manufacturing

## Biotech's Vision

Biotech is committed to addressing and solving the current global water and energy crisis. Diminishing and polluted global water supplies combined with dead and dying coral reefs and marine sanctuaries are evidence of our current global water crisis and hubris. In addition, we label sewage, trash, manure and other used commodities as "waste" for disposal into our oceans and to local landfills, or "approved" for land application and end up throwing away renewable energy resources; resources that can be used as feedstock and converted into clean reusable water, fuel, biodiesel and electricity.

Our current oil "crisis" is in reality the sign of our global energy crisis. We have not only created a preventable energy crisis, but we have also created an unnecessary pollution crisis by sending trash and tires into landfills, and sewage into our oceans, farms, and landfills; these materials represent the total mismanagement and destruction of renewable energy. We are not simply suffering from an "oil shortage"; we are suffering from the disposal and loss of renewable energy sources. This is a mismanagement trend we can, and must reverse! We also think that even "recycling" really amounts to throwing away carbon rich materials that could have been processed to produce fuel and electricity.

Tragically, it is common practice for wastewater treatment plants to dispose of billions of gallons of water daily instead of treating it properly and reusing it, and hauling away sewage that could be converted to electricity for on-site power. This practice is also common among livestock, industrial and commercial businesses, thereby wasting precious water needed for drinking and survival and forever losing potential energy sources; pushing communities and this planet into a global water and energy crisis.

Biotech accepts that our current Global Water and Energy Crisis is by far more serious than Global Warming itself. We intend to make available to communities environmentally friendly and sustainable systems to properly treat and reuse wastewater and solid waste and to provide more available clean water and energy for their community, and the planet. It will also be crucial to educate local people and governments to take ownership of and properly maintain new water and energy supply sources.

## Biotech's Perspective

We acknowledge that the destruction of our air, land and marine environment was caused by our unregulated use of petroleum based energy systems, releases of hazardous and toxic chemicals and toxic sewage sludge from dairy and other waste water discharges into our environment. Local, state and federal governments have failed to properly regulate the dairy and other wastewater industries. Hence, water supplies have been drained, and poorly regulated sewages discharge has destroyed our land, river, and marine environments and created a "negative energy" loop. The consequence of this toxic overload is the global collapse our entire eco-system. Ironically, these waste streams are also sources of water production, recycling and reuse, and carbon-based renewable energy.

## Biotech Partnerships

Our goal is to collaborate with other water and energy partners and to source and employ water treatment and renewable energy systems and products which are energy efficient and effective in their design and ability in treating and providing clean useable water and renewable energy for communities and villages. Through collaborative partnerships with local governments, non-profits, volunteer organizations and community leaders, and other water and energy partners who have developed effective technologies that produce alternative energy and convert dairy and other waste to fuel and power and wastewater to clean water, we will be able to help provide clean water and energy for people covering a broad demographic. Water provides food, health, employment, community livelihood and opportunities for peace, and the ability to mitigate related environmental and political crisis.

## Biotech's Collaborative Strategy

Biotech is committed to developing partnerships with governments, communities and villages, dairy and other livestock industries and commercial wastewater treatment plants, investors, and non-profits such as dairy and other livestock associations, the Global Coral Reef Alliance, The Small Island Developing States, The U.N. Global Conference on Sustainability, and Save the Rain, the Bren School of the Environment and Engineers Without Borders, Doctors Without Borders and contributing research partners.

## Biotech Goals

To provide clean, useable water and energy for communities and create employment and livelihood and reduce GHG and provide additional carbon credits

1. To teach communities and urban populations rainwater harvesting and catchment
2. To properly treat, recycle and reuse surface, livestock, industrial, commercial, and municipal wastewater and polluted and contaminated groundwater
3. To convert livestock and multiple solid waste streams into renewable energy and clean electricity
4. To clean toxic, contaminated water using the methods of Electrocoagulation
5. Assist in the development of a local Environmental Sustainability Center engaged in forums, pod-casting, community-private partnerships, research, and forums
6. Mitigate the destruction of our coral reefs and global marine environment caused by sewage wastewater treatment plants
7. Provide workshops for design changes to architects and contractors in rainwater harvesting and other resource designs
8. Produce a Global Water Crisis documentary titled "Future Water"
9. Eliminate the destructive sewage discharges from livestock production, commercial and municipal treatment plants and the land application of toxic sewage sludge also referred to as "bio-solids"
10. Collaborate with investors and technology partners to provide clean water and energy to financially disadvantaged villages and communities



11. Combine water purification technology and waste conversion to energy technology to produce and provide clean water and convert trash into energy, create livelihood and employment, reduce GHG, provide carbon credits and support the environment
12. Affect and change natural resources-to-waste policies and regulations into "water resource" and "renewable energy resource recovery" policies and regulations

## Summary

Businesses and governments which have been driven by monetary incentives, and failed in their "environmental stewardship" have sent our planet into an ecological crisis. Ironically, only through ecological incentives will be able to properly solve these problems. We are dedicated to educating the global community that the global water and energy crisis is now. And to providing clean drinking water and renewable energy for villages and communities for the purpose of developing a healthy economic infrastructure and meeting the future challenges we will face; today's wastewater is the water of the future, and today's waste is the energy of the future.

Biotech is enlisting the support of investors, technology and energy partners, local, state, national and international governments and organizations, corporate support, academic partnerships, and international networking, to implement environmental regulation and policy changes. We are bringing together investors, engineers, business people, local and global environmental and governmental agencies, water purification and conversion technologies, enlisting environmental non-profits, and initiating and completing community environmental projects, and distributing globally an environmental documentary titled "Future Water". Together, through the "practical management of water and renewable energy", we will provide water and energy for the future.

## Industry

### Oil Exploration and Production Wastewater Solutions

Ecolotron's "E-FLOC" Electrocoagulation solution is proven technology for managing wastewater recovery and wastewater treatment associated with oil exploration and production. The typical chemical treatments and separation technology available produce large volumes of hazardous sludge. The costs of these treatments are high and less effective than desired due to inconsistent water quality and large variations in flow conditions. Ecolotron is able to increase the effectiveness of the wastewater recovery and wastewater treatment operations and lower the overall cost of your operations.

The petroleum industry generates a number of waste streams during oil exploration and production. The primary wastes generated by exploration are drilling fluids and cuttings. Wastes generated by production are produced water (i.e., brine, petroleum hydrocarbons, metals, chemical treatment additives) and oily sludge. Secondary wastes include hydraulic fluid, weighting agents, acids, solvents, tank bottoms and oil debris. Improper disposal of these wastes has the potential to harm our water resources, soil and wildlife.

Increased environmental concern for the effects of produced wastewater discharges encourages oil and gas producers to consider improving performance. In addition, it is the nature of many oil producing systems that the cost of produced wastewater handling increases significantly as the oil fields mature. Oil/water separation technology is traditionally used offshore, i.e. hydrocyclones, and is sensitive to variations in water quality and large variations in flow conditions, gas content and particulates. Predictable conditions are often needed for optimum performance of hydrocyclones and operational aspects have proved to be important for performance.

Ecolotron's wastewater recovery and wastewater solutions offer the following benefits:

- **Dependable Results** – predictable and lower concentrations of waste in the effluent which are not attainable with chemical precipitation treatment.
- **Improved Separation** – better separation of oil and water than the existing methods.
- **Lower Capital Costs** – system designed to easily retrofit existing treatment infrastructure while improving performance, reliability and lowering operating costs

## Municipal Water Solutions

One of the most significant environmental issues facing the United States and other countries of the world is that many of the municipal wastewater treatment plants (sewage) are currently undersized due to increased population. For many of these facilities expansion using their current ineffective treatment systems is impractical because of land use issues. Ecolotron has recently completed initial testing and will soon begin full scale feasibility studies utilizing its patented "E-FLOC" electrocoagulation technology to enhance the performance of these systems. Ecolotron has recently developed a relationship with Woodard Curran as a strategic partner to pursue these applications of our technology.

Another significant issue for municipal systems the storm run-off. During high rainfall events, marginal municipal plants are unable to handle the increased flow rates which typically result in overflows and the release of contaminated water to the environment. Portable electrocoagulation systems can be installed during these events to treat the excess flows and prevent this problem.

Ecolotron's water and wastewater solutions offer the following benefits:

- **Reduced Treatment Cost** – eliminates the need to expand existing in-effective treatment capabilities.
- **Increased Capacity** – designed to easily retrofit existing treatment infrastructure while improving performance without the additional land use issues.
- **Lower Operating Costs** – eliminates the need to dispose of hazardous organic by-products.

## Drinking Water Solutions

Nearly 1 billion people suffer needlessly without access to safe water. We're changing this - one village at a time. Biotech will design & build clean water system using 21st century technologies to provide water, and unlock human potential.

Electrocoagulation (EC) water treatment modules apply an electric charge to treat and clean waste water as it flows over iron slats. Replacing chemical agents in the "coagulation" process of removing contaminants from water, EC uses electricity to shock the water and separate the toxins and heavy metals to be easily filtered out. Elements such as BOD (bacteria) and phosphorous have been effectively removed by as much as 99%.

The goal of **Biotech** is to bring effective environmental solutions to municipal, commercial, and industrial sectors of the community. We bring the ability to properly treat and recycle municipal, commercial and industrial wastewater, and convert trash, sewage, and other waste streams into fuel and electricity; all the while reducing operating costs up to 90%. Biotech is committed to addressing and solving the current global water and energy crisis.

Biotech represents unique and proven waste treatment technologies that transform sewage, trash, manure and other used commodities as "waste" into zero cost feedstock that are converted to clean water, fuel, bio-diesel and electricity.

## Ethanol Wastewater Solutions

Federal and state regulatory agencies are mandating the use of Ethanol in gasoline resulting in Ethanol Production facilities being developed across the farm belt. As with many new production processes, the production of ethanol has been marginally profitable due to the overall production process costs. The use of energy to produce ethanol has been a major contributor of the overall costs of production. Ecolotron has the ability to treat the waste water with our patented "E-FLOC" Electrocoagulation technology resulting in the minimization of energy consumption.

Ecolotron's water and wastewater solutions offer the following benefits:

- **Minimize Energy Consumption** – dramatically reduces the overall energy consumption by retaining the heat of the recycled centrate.
- **Dead Rock Removal** – resulting in higher protein feed yields as a byproduct of the EC process.
- **Recycles Wastewater** – allows liquids to be recycled closing the loop to the fermentation process, therefore eliminating the need for evaporation.
- **Lower Operating Costs** – eliminates the need to dispose of hazardous organic by-products of chemical processes.

## Agricultural Wastewater Solutions

Government agencies have also undertaken an effort to reduce pollution associated with concentrated animal feeding operations such as diaries and feed lots for swine, poultry, sheep, and horses. The major feeding operations typically have on site ponds into which animal wastes and wastewater are collected. Animal wastes contain high concentrations of nitrates, ammonia and phosphorus, all of which are subject to stringent discharge limits. Recent regulations have focused on phosphorus removal by requiring a permit for each such operation as well as requiring on site wastewater treatment systems to control the discharge of phosphorus. Ecolotron has the ability to treat this wastewater with its patented "E-FLOC" Electrocoagulation technology. Our electrocoagulation solution is capable of removing the phosphorus to an acceptable level such that the resulting water may be used for equipment and facility wash down and for field irrigation.

Ecolotron's water and wastewater solutions offer the following benefits:

- **Land Use Issues** – eliminates the need to move existing operations due to phosphorous contamination.
- **Lower Operating Costs** – eliminates the need to dispose of hazardous organic by-products.

## Commercial & Government Services

Contractors pursuing government agency business must meet distinct cost accounting and auditing standards. This can lead to audits that may result in undesirable economic and competitive outcomes.

BIOTECH has a robust and deeply experienced practice in DCAA and related agency audits, providing assurance of contractors' financial policies, procedures, and internal controls. With a focus on consistently exceeding client expectations and establishing longstanding, trusted relationships with those we serve, our DCAA experts help our clients achieve a fair audit outcome.

BIOTECH's expertise extends to business systems, management policies, and contractual provisions. BIOTECH consults with contractors, recommending business improvements that make their operations more efficient – and more profitable.

### **BIOTECH is well versed in supporting regulations relating to:**

- Cost Accounting Standards (CAS)
- Federal Acquisition Regulation (FAR) Including Cost Principles (FAR 31)
- OMB Circulars A-122 and A-123

Whether auditing for qualification or engaged in audit defense, BIOTECH's DCAA practice provides government contracting businesses with the means of assurance for business continuity and development. Arriving at assurance also provides insight into contractors' management strategy, operations, and financials that will help them continue to adapt and to grow.

Most of our consultants are CAS experts where they have had special training held CAS monitor positions with DCAA and are recognized authorities who frequently teach and lecture on the subject. Some contractors must comply with all cost-accounting standards, many more non-CAS covered contractors adhere to many standards that are duplicated or referenced in the Federal Acquisition Regulation.

## Services Include

### **Proposal Preparation Assistance**

Our staff's broad experience allows us to provide a range of services to help our clients prepare understanding the solicitation requirements, developing pricing strategies in preparing price and cost sections of the proposal. As former contracting officers and source selection officials we understand the basis for selection and can be important resource for strategizing the best proposal approach, negotiating the contractor and reviewing draft and final proposal. Our federal contracts attorney can help ensure contracting elements of the proposal and contract best protect our clients' interest. Finally, our proposal manager experiences allow us to lead the process of preparing all sections of a winning proposal.



## Program Management

Federal agencies today must optimize the structure, planning, analysis, and performance of their portfolios, programs, and projects. Every project must deliver outputs in alignment with an agency's mission, while every program must integrate the myriad of projects to deliver the mission. For every project and every program, it is important to ensure performance is measurable in all stages of the program and acquisition lifecycle, from planning through execution. Most—if not all—will involve the implementation of OMB's 25-point plan for improving the government acquisition of information technology, which is impacting both the program and acquisition communities.

- How do you track and measure success of your portfolios, programs, and projects?
- How do you plan the acquisitions needed in support of your program? And ensure they are structured most cost-effectively? And then manage them to ensure they meet cost, schedule, and performance goals?
- How do you seek and adopt program management best practices and implement principles in a practical, result-driven manner?
- How do you contextualize and implement OMB's 25-Point Plan into your projects and programs?

Whether you are establishing a new Program (or Project) Management Office (PMO) or looking to optimize the practices of your current operation, BIOTECH will provide solutions.

We'll assess the current state of your program—or portfolio of programs—and identify opportunities for quick hits and longer-term improvements, consider your goals, objectives, and process improvement priorities. We'll explore opportunities to introduce more agile, modular approaches, and work with you to explore the marketplace options for satisfying your needs and for optimal ways to define, communicate, and meet your agency's needs. We'll help you perform investment analyses, as appropriate, and to optimize your business cases, establishing appropriate governance of your investment decisions, and enabling an overarching strategic approach to measuring and managing your projects, programs, and portfolios

Optimize your projects, programs, and portfolios, with BIOTECH

- I. The Project management process - Most experienced project management practitioners recognize there is more than one way to manage a project. The specifics for the battery project will be defined as objectives that will be accomplished based on complexity, risk, size, period, project team's experience, access to resources, amount of historical information and industry and application area. Biotech Team will be responsible for determining what process from the Process Groups will be employed, by whom, and the degree of rigor that will be applied to the execution of those processes to achieve the desired project objective.
- II. The Project management process groups - The battery project is a large project that will be separated into distinct phases and sub-phases such as feasibility study, concept development, design, prototype, build, test, etc. all of the process group processes would normally be repeated for each phase or subproject:
  - Initiating Process Group - Defines and authorizes the project or a project phase
  - Planning Process Group - Defines and refines objectives, and plans the course of action required to attain the objectives and scope that the project was undertaken to address.

- Executing Process Group – Integrates people and other resources to carry out the project management plan for the project.
- Monitoring and Controlling Process Group – Regularly measures and monitors progress to identify variances from the project management plan so that corrective action can be taken when necessary to meet project objectives.
- Closing Process Group – Formalizes acceptance of the product, service or result and brings the project or a project phase to an orderly end.

III. Process Interactions – The designated Planning Process Group provides and Executing Process Group a documented project management plan and project scope statement, and often updates the project management plans as the project progresses. In addition, the Process Groups are seldom either discrete or one-time events; they are overlapping activities that occur at varying levels of intensity throughout the project.

#### IV. Project Management mapping –

- Project Charter - Formally authorizes the project.
- Project Scope Statement – States what work is to be accomplished and what deliverables need to be produced.
- Project Management Plan – States how the work will be performed. Biotech Team project management plan will be composed of the plans and documents generated by the various processes. Those items will be the subsidiary plans and components of the project management plan.
  - Scope Management Plan
  - Schedule Management Plan
  - Cost Management Plan
  - Quality Management Plan
  - Staffing Management Plan
  - Communication Management Plan
  - Risk Management Plan
  - Procurement Management Plan

## Contract Administration

Contract Administration is too important a function to have less than the best possible professionals taking care of it.?? Administering contracts, limiting company liability, making the right risk versus benefit trade offs, etc. must be performed by highly experienced professionals. Many companies cannot afford to hire the requisite professional talent but they should not settle for less. Our staff's contract administration officers for the government, contract managers in the private sector and federal contract attorneys allows us to assist clients in all facets of whether clients wish to outsource the contract administration function to us, have us establish the functions in-house, supervise on-going activities or provide service on an as – needed basis we have the staff to ensure the critical contract administration functions are taken care of at minimal expense.

Examples of services include:

- Establishing the contract administration function including preparing policies and procedures, hiring personnel, training, etc
- Taking over a firm's contract administration function on a outsourced basis where we combine a staff of administration personnel, experienced contract managers and attorneys specializing in government contracting
- Supervising contract and subcontract administration functions either on an occasional or a day-to-day basis
- Establishing special contract administration service from our attorneys and former contract managers on an as-needed or retainer basis

To discuss your need contact Malcolm Parker, Vice President for Administration at (256) 919-8001.

## **GSA Schedule Preparation and Negotiation**

We have helped several clients wade through the process of establishing GSA Schedules for products and services and proposed prices and negotiation of federal supply schedule contract (often referred to as Multiple Award Schedules). Whether the GSA schedules are based on cost build up or commercial market pricing we help contractors establish the best possible schedule.

Services have included:

- Strategizing on establishing GSA schedules
- Establishing prices and negotiating the best possible results
- Preparing disclosures, initial offers and best and final offers on FSS contracts
- Establishing comparable customer for administering the "Price Reduction" clause
- Advising clients on compliance infrastructure requirements imposed on FSS contracts.

To discuss your need contact Malcolm Parker, Vice President for Administration at (256) 919-8001.

## **Audit Subcontractors Proposals**

Prime contractors or upper-tier subcontractors are usually responsible for most aspects of their subcontractors. Adequacy of subcontractors' accounting practices and their proposals can be important factors in award decisions and contract administration once an award is made. Subcontractors' proposals, accounting practices, invoicing practices, claims, etc need to be reviewed yet few prime contractors have the ability or resources to provide such services or they do, subcontractor may object to potential competitors reviewing their books. Most of our consultants are CPA's so we can objectively audit sub-contractors records, providing necessary conclusions to our clients, while keeping other matters confidential.

Services we can provide include:

- Audit subcontract's accounting practices
- Recommend fixes for subcontractor deficiencies

To discuss your need contact Malcolm Parker, Vice President for Administration at (256) 919-8001.

## Biotech Values & Principles

Biotech Research Laboratories Inc. founded in 1986 as an Environmental testing and consulting firm. Biotech Governmental Services was recently established with Governmental senior executives as results of Federal retirements and downsizing. This experience team is a global management consulting firm that uses a performance based approach to shift the risk to us and achieve long-term, sustainable changes for our public-sector clients.

Biotech embraces and encourages innovation, creativity, and diversity in a professional environment. We hold ourselves to the highest of standards and are committed to delivering on our promises.

Biotech staff and consultants are deeply committed to upholding the values embodied by the firm, including:

- Global collaboration, strategically alliances' and partnerships
- Respect for the ideas and viewpoints of clients and each other
- Humility recognizing that challenges continually evolve
- Collaboration through every step of the consulting process
- Optimism for a positive outcome no matter how great the challenge
- Integrity in all our words and actions
- Results-focused to ensure sustainable change



**BIOTECH RESEARCH LABORATORIES, INC**

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