Providing Ecological Solutions to a Demanding Industry
Today's Objectives

1. Introduce FyreRok Biofluids (FBF)
2. Introduce the HOCl Technology and explain the opportunity
3. Show how the technology will benefit the industry
4. Discuss Where FRC stands with the project funded by BF
5. Lessons learned to date
FyreRok Biofluids? – Where are we now?

1. New company owned by FyreRok Reservoir Consulting
2. Rev to date? $0
3. Rev planned for FY1? $11 million
4. Current employees? You are looking at him!
5. Great support from FRC (directors, advisors, consultants)
6. So what do we have?
   1. An idea that a technology from the grocery business can be applied cost effectively, safely and GREENLY to the business of hydraulic fracturing—and it is needed!
   2. A working prototype which is in the parking lot today in operation for you to see and put to work on your next frac!
   3. A well engineered production unit is underway to market.
   4. A valuable matching grant from the Ben Franklin fund
FyreRok Reservoir Consulting -- THE LEADERSHIP TEAM

1. This business is “not our first rodeo”, previous start-ups.
2. Four partners, with both E&P and Service Company experience including Schlumberger and Chesapeake and others up to level of Vice President. Combined experience of over 120 years in the oil and gas industry—Experienced Team and Advisors.
3. Partners have started and sold companies in the E&P and Service sector. We all have extensive history in starting companies and managing profits in the O&G industry, domestic & international.
4. The Partners know our opportunities and our clients very, very well and communicate regularly with very positive response.
5. Our expertise covers all of the markets that we intend to target in the marketing, sales and delivery in oil and gas.
Bacteria is a common issue in all phases of oil and gas development. Wherever water is present, an E&P Operator needs to address the bacteria problem.

The industry is moving away from traditional TOXIC chemicals to “GREEN” or less toxic alternatives. Biocides for water treatment have been a challenge—until now!

FBF has obtained the exclusive license to a technology to produce a NON-TOXIC product that can fill that need less expensively, more GREEN and very reliably—HOCl.
Conclusions

1. A fracturing fluid composed of 20% produced water that is treated with an oxidative biocide at a level sufficient to reduce bacteria to <100 cells/ml shows no bacterial re-growth in the flowback water for up to 81 days.

2. In laboratory testing, the oxidative biocide showed faster action than glutaraldehyde, a non-oxidizing biocide. In the field test, the treatment was shown to have adequate persistence.

3. The laboratory evaluation of this oxidative biocide demonstrates negligible corrosion on typical metals used in oilfield surface equipment and tubular goods.

4. This oxidative biocide is compatible with both slickwater and guar-based fracturing fluid formulations. As for any new additive, it is recommended to check compatibility of this oxidative biocide with additives and mix water prior to the stimulation treatment.

5. The oxidative biocide is added to the fracturing fluid in a form which is not a wellsite hazard in terms of health, biodegradability, and toxicity.

6. The successful use of an oxidative biocide in the field is demonstrated in this case study. Though the results are encouraging, it is suggested that additional field studies be performed to validate the robustness of this approach.
**Non Toxic Biocide Technology**

A Disruptive Technology in Oil and Gas

1. Proprietary technology is reliable, no moving parts, has been tested in beta unit = high reliability
2. Unit will be producing HOCl with 90% less capital cost vs. other manufacturers--less footprint, real time, onsite, faster
3. HOCl has been documented by Schlumberger with exceedingly high efficiency, real-time, needs reliability
4. Green: Approved by FDA for food and EPA for Oil and Gas
5. Demonstrated the unit to select industry entities (feedback)
6. The Oil and Industry needs non toxic products, less costly
What is **HOCl** market? BIG in O/G
Objectives, Goals & Plans

• OBJECTIVE: Highly credible, internationally recognized service provider to the oil and gas E&P industry; build a business that can be sustaining with valuable benefits to our clients, employees and to the industry as a whole.

• CREATE A STANDARD: Establish HOCl as the *de facto* industry standard for bacterial treatment of water, pre or post fracturing, as well as in all segments of transport and downstream processing.

• GOALS: Upstream Year 3 Goals: $200M+ Rev., 25% net with exceptional safety record and unquestioned reputation in the upstream industry. Initiate market penetration in transport and downstream sectors.
Challenges and Solutions

• Challenges: to meet rapid growth with excellent results
  – Finding quality people in different basins
  – Executing safely
  – Expansion with quality standards and consistency

• Critical Plan Elements:
  – Inventory readiness for rapid deployment
  – Aggressive recruiting and training of field technicians
  – Strong geographic presence in all major NA shale basins
  – Initiate the awareness of the industry to HOCl alternative
  – 3 pronged approach marketing focus
    Regulators, Operators, Service Companies—no conflicts
Results vs Ben Franklin Award Targets

• Began the process with Ben Franklin in mid 2014
• Result was an matching award of $50,000 on 2 November 2014
• Objectives during the program and status
  
  – Design a prototype unit
  – Name the prototype unit
  – Build the Green Machine
  – Test the Green Machine
  – Engineer a production unit
  – Name the production unit
  – Build and test the production unit
  – Initiate industry rollout

  Done: Completed by 1/1/2015
  Done: The FRB Green Machine
  Done: Completed 4/11
  Done: Completed 4/25
  In Process (Target 1 June)
  Top Secret
  In Process (Target 15 June)
  Q3 2015
FyreRok Biofluids Lessons Learned:

- The advisors, BOD, and partners you have are worth everything—choose them wisely and listen well to their advice
- Time, Time, Time.....EVERYTHING takes time
  - Time to get design approved and Time to get parts
  - Find out your design doesn’t work; revise and revise again
  - Trial and error but a process that has a structure
- Take good notes and document the successes and failures
- Use a team approach to solve problems—communicate well
- Involve prospective clients and other stakeholders
- Expect setbacks and to be discouraged; and charge forward
- Lastly and critically, funding:
  - It is tough to get funding—a sound plan, good data, non-stop
  - It will cost more than you plan
  - Continuously visit your clients, your suppliers, your team
FyreRok Biofluids Lessons Learned:

• When written in Chinese the word “crisis” is composed of two characters, one represents danger and one opportunity. JFK

• In any moment of decision, the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing! Teddy Roosevelt

• Whether you think you can or you think you can’t, you’re right. Henry Ford

• Those who dare to fail miserably can achieve greatly! JFK

• Success is going from failure to failure without losing your enthusiasm. WC

• If you have an idea
Thanks you for your time and attention.