Alcorn
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Summary Report

Site Visit

U.S. Sustainable Energy Corp.
(USSEC-Rivera Process)
Natchez, Mississippi

INTRODUCTION

A sustainable system must be stable; it must operate in such a way that it neither upsets ecological systems nor overexploits living organisms. Sustainable management ensures that natural resources will be managed in a renewable fashion and that environments will be resilient enough to survive inevitable floods, droughts, heat waves, and cold winters. An ideally sustainable system is characterized by stability, resilience, and use of appropriate technology, efficiency, and satisfactory productivity. The question is, What can be done about the depletion of nonrenewable energy sources (oil, coal and natural gas)? The answer is, We must make a transition from fossil fuels to other energy sources and do it before current supplies run low. This is where the USSEC "Rivera" Process fits in.

SITE VISITATION

On February 13, 2007, a team of two from Alcorn State University's Department of Biological Sciences visited the USSEC site to observe the process of Biofuel

production from soybean. The members included Willie Humphrey, Ph.D., Wildlife Ecologist, and Emma Jackson, M.S., Biologist/Assistant Phytoremediation Researcher. Their task involved the observation and validation of Biofuel production from soybean. These individuals were chosen because of their involvement in the cost-effective clean renewable resource production of alternative fuels for industrial, commercial, and household usage.

This presentation involved demonstrations that revealed the cost-effective production of Biofuel and other products for municipalities, utilities, wholesale power distributors, and others. The team observed firsthand the simplified "Rivera" process using an economically designed feedstock reactor employing soybean (20 pounds) yielding 11.42 liquid pounds, 5.31 pounds of ash or solid material, and 3.27 pounds of biogas in approximately a 2-1/2 hour time span. This process produced about two gallons of Biofuel at a price of $.50 per gallon as compared to other liquid fuel (biodiesel) at a price of $2.50 per gallon. This indicated a more efficient production process (5 gallons of Biofuel per feedstock of soybean) in comparison to 1.5 gallons of biodiesel using the same quantity of feedstock.

The team also observed a high-energy performance of vehicle usage (lawnmower, motorcycle, four-wheeler, and a standard industrial engine). Two types of Biofuel products were observed, a light Biofuel and a heavy Biofuel in containers from the cooling tower of the reactor. In addition, an ash was produced to be used as a carbon-rich fertilizer. It was also noted that the rich natural ash fertilizer and the biogas have an economic importance in that the fertilizer replenishes the soil and the biogas powers the manufacturing facility.

Another demonstration revealed the same physical properties of the Biofuel. It does not clog engines, and it flows at temperatures lower than -70° F and remains liquefied at temperatures of -90° F, making it readily pump-able. It was shown that it burns very cool and does not degrade engine performance. It was noted in the demonstration that it can be used 100% in diesel engines and as a 50/50% blend in gasoline engines without retrofit or modification. No gum deposit or residue formed. These qualities indicate that this Biofuel shows great promises for usage in cars and trucks.

COMMENTARY

USSEC using the **"Rivera"** process has placed the solution to our energy problem on the front burner and the flame is on high We believe that this is the sparkle that will ignite the flame of deliverance of America from Foreign dependency. We must make a transition from fossil fuels to other energy sources and do it before current supplies run low. This is where the USSEC group of companies of Biofuel from soybean fits in.

The U.S. consumes enormous quantities of energy. This trend will not stop and will become significantly more expensive within the next decade. We must implement a plan that is beneficial both economically and ecologically. In the early days of the Industrial Revolution, low energy prices reflected only costs of production. Now we must factor in not only increased costs of findings, extracting, and transporting energy supplies, but also the expenses of controlling pollution of our air, water and soil. Future generations are depending on us to preserve and protect our natural resources and make

them readily available, safe to use and in an adequate quantity.

Signed Willie Humphrey

Willie Humphrey, Ph.D.
Associate Professor

Emma Jenkins-Jackson

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