

ARCTECH, Inc.
14100 Park Meadow Drive
Chantilly, VA 20151-2217
Phone: (703) 222-0280
FAX: (703) 222-0299
www.arctech.com



PRESS RELEASE

April 15, 2014

ARCTECH Announces Selection from a Global Challenge Competition by CCEMC of Alberta, Canada of its HUMASORB® Technology for Recycling into Water Filter of Greenhouse Gas Carbon Dioxide and Contaminants SO_x, NO_x, and Toxic Metals Emitted from Fossil Fuel Plants

Chantilly, Virginia: The Climate Change and Emissions Management Corporation (CCEMC), a Government of Alberta organization, announced today the selection of our HUMASORB® Technology for its advancement and deployment in the Province of Alberta to enable its industry to comply with the Province's GHG emission mandates. HUMASORB® Technology utilizes a multipurpose adsorber derived from coal, which has been proven for removal of contaminants from municipal, industrial, mining and nuclear industry wastewaters. In this project we will advance HUMASORB®'s applications for removal and recycling of contaminants from combustion gases produced during the use of fuels that contain carbon. The Province of Alberta currently produces almost 240 Million metric tons of carbon dioxide every year, which amounts to over 30% of the total emissions of Canada. Almost 80% these are released from the electric power plants and oil sand operations. The Government of Alberta has set mandates for its industry to reduce emissions by 12% from their 2000 baseline emissions. Fossil fuels are the largest resources of the Province of Alberta. They are critical to the economic well-being of its inhabitants, and they contribute reducing the cost of energy for other regions in Canada and USA. One billion cubic meters of wastewater is discharged every year in this province from municipalities and various industries as well as 6000 polluted groundwater sites estimated to require \$3.5 billion. Control of both of these large discharges into air and water has become a must have for mitigating the adverse impacts to human health and the environment. HUMASORB technology addresses both of these large needs and offers an approach of cost effectively mitigating the climate control concerns and air pollution by a value generation sustainable approach, while meeting the needs of wastewater treatment for the industries of the Province.

Feasibility tests conducted by the ARCTECH Research Team at its Research Center in Chantilly resulted in complete removal of CO₂, SO_x, NO_x and toxic metals, including mercury from combustion gas, from coal samples. With the grant from CCEMC, ARCTECH will conduct tests over the next 18 months for applicability to selected target emissions from a coal power plant and an oil sand operation in the province. The resultant recycled water filter will be evaluated also for its applicability to target wastewater treatment needs in the Province. Based on the results from this project, a pilot facility will be established for demonstration and to seek its deployment by the Alberta industries for compliance to the emission standards set by the Government of Alberta.

Control of greenhouse gas emissions has become one of the most perplexing conundrums worldwide because of the urgency for mitigation as well as concerns from its high cost to the economy. Earlier this month the United Nations Intergovernmental Panel for Climate Control

(IPCC) issued a report recommending drastic measurement to avert the adverse impacts already being experienced in many regions of the world. Also recent measurements at the US Government National Oceanic and Atmospheric Administration's (NOAA) Earth System Research Lab in Mauna Loa in Hawaii reported that the average amount of CO₂ in atmosphere has now exceeded 400 parts per million from 280 parts per million before the industrial revolution. The IPCC reports that since then the average global temperature has increased by 0.85°C and is the cause of the adverse impacts. This increasing trend is now at an alarming stage and, with further increases if it remains unchecked, the adverse impacts will increase rapidly.

ARCTECH, founded in 1988, has for over 25 years focused exclusively on pioneering a biotechnology approach based on using microbes derived from termite guts and proving that it overcomes the concerns resulting from thermal-chemical use of coal. The basic premise of our biotechnology approach is to maximize the retention of carbon in our planet while providing value generation approaches to human needs and our planet in a “Balanced Sustainability” approach. This in turn will result in mitigating emissions of excessive carbon into the atmosphere while producing higher economic values. Coal is one of the most abundant fossil fuels, albeit “Buried Biomass,” and its use results in the highest amounts of CO₂ per unit of energy than any other fossil fuel. However, carbon in coal is still the lowest cost carbon abundantly available on all the continents and remains the basis of economic well being for the majority of the world. ARCTECH has capitalized on the plant-originated humic matter in buried biomass to produce clean energy and non-energy organic humic products for use for cultivation of safer foods, cleaning up contaminated waters, and recycling of wastes. Humic matter is even used to convert obsolete military bombs into fertilizer. These uses result in replenishing the organic humic matter in our soils, which is the fourth largest storehouse of carbon after sedimentary rocks, fossil fuels and ocean waters. ARCTECH also utilizes the microbes to inject into deep un-mineable coal seams for the gradual production of clean fuels from the many trillions of tons of resources available in the coal fields. ARCTECH operates a prototype production plant in Virginia, and the organic humic products made from this plant have received endorsement from USDA, US EPA and trade organizations, including in China. The organic humic products made at this plant are used to solve the real-life needs in agriculture and environmental market sectors in the USA and abroad. Recently, products made at this plant are helping the poultry industry in mitigating concerns of ammonia and sanitation for addressing the health issues of the birds at the commercial production poultry houses. The HUMASORB® technology approach selected by CCEMC is based on one of the products produced from coal at our Virginia plant. Large resources of coal deposits in Alberta are known to be rich in organic humic matter and have been described in literature as “Humalites.” ARCTECH feasibility tests have shown that these coals will be amenable to ARCTECH coal biotechnology and harness their potential for the Province of Alberta as well as an attempt to set a path forward for solving this worldwide burgeoning conundrum. ARCTECH is seeking collaboration and strategic alliances in the Province of Alberta in supporting the mission of CCEMC.

For additional information on ARCTECH solutions and vision please note www.arctech.com as well as recent live interview link: <http://youtu.be/Mn1wZuY9jRI>

Please contact Dr. Daman S. Walia at (703) 222-0280 or dwalia@arctech.com for further information.