

**RTA Systems, Inc.**  
**2007 Proposal to the**  
**Stripper Well Consortium**

**New Class of Novel Paraffin Inhibitors**

***PUBLIC EXECUTIVE SUMMARY***

A potentially new class of novel paraffin inhibitors will be investigated for their performance in treating wells with severe paraffin problems. The expected benefits of this work are lower cost and environmentally friendlier paraffin treatments that will not contribute to downhole equipment corrosion. Paraffin problems impact many of the 435,000 stripper wells in the U. S. and occurs in every region where oil and gas is produced. When paraffin builds up in a well or flowline it can restrict or completely shut off oil and gas production causing lost revenues and expensive ‘stripping’ well pulling jobs. This novel copolymer technology is expected to function as paraffin crystal modifiers. This in-sight comes from exceptional performance behavior with crude oils and refined distillates in other application areas. The proposed research is directed toward the replacement of the conventional polyalkylmethacrylate monomers often copolymerized with anhydrides or carboxylates which suffer from high concentrations requirements, high cost, or the tendency to contribute to corrosion. These new copolymers fall under the “green chemistry” logo and some have FDA approval for certain other applications involving food contact. These products should not interfere with refinery operations.

RTA Systems has made a significant discovery of a new polymer type that has a preference for paraffinic crude oils and distillates that has unique absorbent properties in the environmental products arena, surpassing the performance of competitive products. From the literature search, a copolymer of similar chemical stoichiometry, but significantly different chemical structure was identified as having significant paraffin inhibition properties in crude oil and pour point depressing abilities in refined petroleum cuts. Because the performance mechanism for the environmental application is different from the accepted mechanism for paraffin crystal modifiers, it is plausible this potential new family of paraffin inhibitors may inhibit paraffin deposition in crude oil operations to a higher level of performance than the commercially available products.

Laboratory tests will be conducted to screen the various polymers for pour point and cloud point suppression in petroleum or refined products. From this screening, the laboratory effort will focus on the best products for cold finger testing in five crude oils with the experimental polymers and known paraffin commercial inhibitors. A study will be conducted to select the best solvent system and mixing requirement for that system to provide the best results by cold finger testing. Core testing will be conducted to establish the best methods of application. Well information will be obtained from selected wells for possible field treatments and laboratory tests will be made to determine the optimal treatment plans. Three field treatments will be conducted from these choices. The results will be monitored for performance and the benefits obtained.