



U.S. Department of Energy Categorical Exclusion Determination Form



Program or Field Office: Office of Energy Efficiency and Renewable Energy:
Phase III Xlerator Program

Funding Opportunity Number DE-FOA-0000397

Applicant Name: Compact Membrane Systems, Inc

Location: Newport, DE

Project Title High Performance Hollow Fiber Membranes for Lubricating
Fluid Dehydration and Stabilization Systems

Proposed Action or Project Description American Recovery and Reinvestment Act:

The specific aim of this program is to commercialize a simple low cost system that reduces the water and chemical contaminants found in hydraulic and lubrication systems. A novel membrane-based technology for continuous on-line dewatering of lubricating oils is proposed. Compact Membrane Systems, Inc. proposes to introduce a chemically resistant membrane that has very high water vapor transport at low water activity. The product concept is a membrane system where the lubricating fluid is circulated on one side of the membrane and a vacuum and/or sweep gas is applied on the other side to remove the dissolved and dispersed water. During the previous Phase I/II projects, a prototype unit was developed and field tested. We have streamlined a commercial design and built prototypes of the dehydration system. Composite membrane modules with excellent chemical and thermal resistance in combination with the desired flux and separation properties to stabilize a range of lubricating fluids were developed. Laboratory testing at representative temperatures showed that real time use of the membranes dramatically enhanced long term stability. For Phase III, Compact Membrane Systems, Inc. proposes to develop and install a pilot spinning/coating line to permit unfettered manufacturing of the membrane modules, optimization of the membrane material and ancillary components, strengthening of the appropriate in-house expertise, optimization of the design of the unit for the wind turbine application, strengthening ties with our marketing and distribution partner, and initiation of volume production of the membrane module. Initially, the wind turbine gear oil product will be targeted. This will be followed by other dehydration opportunities that will follow, such as, drying of lubricating and hydraulic fluids in the power generation and steel and aluminum production industries. Products developed in this program will also be of great value to satisfy the needs for chemically and thermally resistant membranes and also for drying biofuels (biodiesel, bio-ethanol, bio-butanol, algae oil, bio-oil).

Conditions: None

Categorical Exclusion(s) Applied: B3.6, B5.1

*-For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, see Subpart D of 10 CFR 10 21

This action would not: threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including DOE and/or Executive Orders; require siting, construction, or major expansion of waste storage, disposal, recovery, or treatment facilities, but may include such categorically excluded facilities; disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; or adversely affect environmentally sensitive resources (including but not limited to those listed in paragraph B.(4)) of Appendix B to Subpart D of 10 CFR 1021). Furthermore, there are no extraordinary circumstances related to this action that may affect the significance of the environmental effects of the action; this action is not "connected" to other actions with potentially significant impacts, is not related to other proposed actions with cumulatively significant impacts, and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211.

Based on my review of information conveyed to me and in my possession (or attached) concerning the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.



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ORO NEPA Compliance Officer

James L. Elmore

Date Determined:

9/28/2010