Technical assistance Request

Desert Water LLC (DW), Youngstown State University and Stainless Specialties of Chester, WV have done research, investigations, studies, lab tests, analysis and engineering on the Saltwater Distillation System (SDS). An improved design has been developed and will be used in further work. This is still an initial R&D project so much has to be done. Assistance is welcome in the following efforts.

There are unknowns and questions to be answered to develop the prototype test vessel. Should there be pressure or vacuum within the vessel and how is it maintained? What should be the wheel rpm and the horsepower? What type of commercially available mist eliminator is required to ensure that only pure steam vapor exits the vessel? How to control the operation?

For the process work, an analysis of mass and heat flow for various system sizes will be used to determine exactly how the process will be done, what auxiliary equipment will be used, what size will it be, how much power does it require, what instrumentation is required and how will the process be controlled and recorded. In the limited prototype test, a full description of the prototype test procedure is required, including safety features. Heat requirements, instrumentation, methods of handling the water, for example batch or continuous, expected results and measurement and analysis of actual results are required.

Initially, a prototype will be built and tested at the wet lab at Brite Energy Innovators (BEI), Ohio's energy tech incubator in Warren, Ohio.

Based on research, studies and lab work done at YSU, a new design for the prototype has been established. Work is required as follows:

1. Prototype vessel specifications, engineering and preparation of drawings and bills of material.

2. Procedures and engineering for the prototype lab test including safety measures.

3. Procurement of prototype vessel and test equipment.

4. Performance of the prototype lab test at BEI, analysis of results and detailed engineering report with performance results and recommendations for improvements. This is the essential "Proof of Function."

5. Engineering of full-scale field operating vessel to operate with solar power (or heat from a power plant).

6. Procurement of full-scale field operating vessel.

7. Coordination with engineers at Sandia National Laboratories for engineering, installation and startup of first field test of the complete Solar Distillation System. We have signed an NDA with Sandia National Laboratories in Albuquerque, New Mexico and they have agreed to use their heliostats to test our system.

In summary, our needs include:

Business Development & Commercialization

• Hardware Development

• Product Development

• Product Design

• Manufacturing

• Fabrication & Prototyping

• Technical Analysis

• Procurement of Raw Materials

• Science, Research and Development

• Funding & Investments

• Marketing & Promotion

• Testing and Validation

At some future point after successful testing, DW will begin work to become an international Engineering and Construction company with the ability to engineer, construct, install, start up and operate SDS facilities in the US and around the world on land and on ships. Assistance is required in this area.