

## STATEMENT OF CONSIDERATIONS

REQUEST BY U.S. SYNTHETIC CORPORATION (US SYNTHETIC) FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS UNDER DOE AWARD NO. DE-EE0003633; W(A)-2011-026

The Petitioner, US Synthetic, has requested a waiver of domestic and foreign patent rights for all subject inventions arising from its participation under the above referenced cooperative agreement entitled "The Development of Open, Water Lubricated Polycrystalline Diamond Thrust Bearings for Use in Marine Hydrokinetic Energy Machines."

The goal of the Marine Hydrokinetic Technology (MHK) Readiness Advancement Initiative is to accelerate the development of supporting technologies that are necessary for the eventual use of MHK for energy production. A key design element in most MHK strategies will be robust bearings that can operate for extended periods of time in harsh marine environments. The purpose of this agreement will be to demonstrate the effectiveness of polycrystalline diamond bearings in the MHK application, which will, in turn, contribute to the eventual success of this and other renewable energy technologies.

Under this agreement, Petitioner plans to design, fabricate, and test prototype polycrystalline diamond (PCD) thrust bearings. Petitioner plans three design-build-test iterations to provide opportunity to apply lessons learned to each subsequent bearing design. If Petitioner develops bearings that are commercially promising, a limited number of prototype bearings will be made available to interested manufacturers of MHK for field trials.

The total anticipated cost of the agreement is \$191,987 with Petitioner providing 23% cost share, totaling \$45,003. This waiver is contingent upon the Petitioner maintaining the above cost sharing percentage over the course of the agreement.

US Synthetic is an industry leader in synthetic diamond products, including polycrystalline diamond bearings. Petitioner has been synthesizing diamond since 1978, and is recognized in the oil and gas industry for its innovation and for its advanced products. US Synthetic's main products are cutting elements for drill bits that are used in drilling oil and gas wells. Other products include mining drill bits, diamond bearings, and a service for enhancing diamond gem quality. The bearings division of US Synthetic, which will perform the work under this agreement, has been manufacturing bearings since 2001. These bearings operate in harsh environments found in subterranean drilling. Application of diamond bearings to MHK technologies is a new market for US Synthetic.

The bearings division of US Synthetic has invested in the modification of a commercial bearing test stand that will enable its personnel to carry out the work under this agreement. Petitioner invested approximately \$500,000 in the test stand, and the modification to allow the test stand to flow water will cost approximately \$25,000 in addition to that initial investment. Additional resources that will be used for the agreement include machining centers, high-pressure, high-temperature presses, and other testing equipment.

Petitioner has agreed that this waiver shall be subject to the march-in and preference for U.S. industry provisions, as well as the U.S. Government license, comparable to those set out in 35 U.S.C. 202-204. Further, Petitioner has agreed to the U.S. competitiveness provisions as attached to this Statement. In brief, Petitioner has agreed that products embodying intellectual property developed under this agreement shall be substantially manufactured in the United States, and that Petitioner will not license, assign, or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements.

Referring to item 10 of the waiver petition, granting this waiver is not anticipated to have any adverse impact on competition because the waiver will allow the development of a more sophisticated bearing that may be adopted by established MHK equipment fabricators, which will increase the likelihood of commercialization. US Synthetic plans to make successful bearing technology available to any established MHK fabricator. The ultimate outcome, if the project is successful, will be to increase competition in the marketplace via wide dissemination of the technology.

Considering the foregoing, it is believed that granting this waiver will provide Petitioner with the necessary incentive to invest its resources in commercializing the results of the agreement in a manner that will make the above technology available to the public in the shortest time. Therefore, upon evaluation of the waiver petition and in view of the objectives and considerations set forth in 10 CFR 784, all of which have been considered, it is recommended that the requested waiver be granted.

  
Julia Cook Moody  
Patent Attorney  
Golden Field Office

Date: / /

Based upon the foregoing Statement of Considerations and representations in the attached waiver petition, it is determined that the interests of the United States and the general public will best be served by a waiver of patent rights of the scope determined above, and therefore the waiver is granted. This waiver shall not apply to any modification or extension of the agreement, where through such modification or extension, the purpose, scope, or cost of the agreement has been substantially altered.

CONCURRENCE:



Mark Higgins  
Acting Program Manager  
Wind and Water Power Program

APPROVAL:



John T. Lucas  
Assistant General Counsel for Technology  
Transfer and Intellectual Property

Date: 

Date: 

## U.S. COMPETITIVENESS

The Contractor agrees that any products embodying any waived invention or produced through the use of any waived invention will be manufactured substantially in the United States, unless the Contractor can show to the satisfaction of DOE that it is not commercially feasible to do so. In the event DOE agrees to foreign manufacture, there will be a requirement that the Government's support of the technology be recognized in some appropriate manner, e.g., recoupment of the Government's investment, etc. The Contractor further agrees to make the above condition binding on any assignee or licensee or any entity otherwise acquiring rights to any waived invention, including subsequent assignees or licensees. Should the Contractor or other such entity receiving rights in any waived invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in any waived invention is suspended until approved in writing by DOE.