STATEMENT OF CONSIDERATIONS

REQUEST FOR ADVANCE WAIVER OF PATENT RIGHTS BY CERAMATEC, INC., MADE DURING THE PERFORMANCE OF SUB-CONTRACT 214-591-P-A, UNDER DOE AWARD NO. DE-FE0012065 TO AIR PRODUCTS & CHEMICALS, INC.; W(A)-2014-026, CH-1722

Petitioner, Ceramatec, Inc. (Ceramatec), has requested a waiver of: (a) domestic and foreign patent rights for all subject inventions conceived solely by Ceramatec and (b) Ceramatec's undivided interest, based on its employee's contributions, to joint domestic and foreign patent rights for all subject inventions conceived, arising under the above referenced awards.

The objective of the award is the development of ceramic membrane materials with improved performance and reliability. Petitioner is to act toward this aim by assisting the prime contractor in the development of improved and lower cost ceramic membrane modules and ceramic processing for lower cost production

The total anticipated cost of the award is \$22,981,075.00 including the prime contractor contribution of \$11,490,538.00, or about fifty percent (50%) of the total cost of the work under the award. Petitioner anticipates receiving in compensation from the prime contractor an amount of \$7,868,537.00, or about thirty four percent (34%) of the project total. The period of performance is from 1 October 2013 to 04 July 2016.

Referring to items 5-9 of the waiver petition, Petitioner has engaged in the research and development of oxygen transport membranes. This experience extends to Petitioner's experience in prototyping and pilot line processing and manufacturing of ceramic materials and devices. Petitioner has a multi-decade history of pursuing intellectual property rights for inventions and is currently listed as the Assignee on 134 patents. Further, Petitioner has invested significant capitol, greater than \$10 million, on overlapping programs such as fuel cells and oxidizers. Accordingly, Petitioner has significant experience in developing technology within this field and will continue to further develop the contracted work.

Petitioner has agreed that this waiver will be subject to the march-in and preference for U.S. industry provisions, as well as the U.S. Government license, set out in 35 U.S.C. 202-204. Further, Petitioner has agreed to the attached U.S. Competitiveness provision (paragraph (t). The Petitioner further has agreed to the attached revised paragraph (h) to submit annual reports on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by Petitioner and any of its licensee or assignees. If sold or transferred this reporting obligation will pass on to the buyer or transferee.

Petitioner has agreed that products embodying a waived invention or produced through the use of a waived invention will be manufactured substantially in the United States unless the Petitioner can show to the satisfaction of the DOE that it is not commercially feasible to do so. Petitioner has further agreed to make the above conditions binding on any assignee or licensee or any entity otherwise acquiring rights in the waived inventions, including subsequent assignees

and licensees. Should Petitioner or other such entity receiving rights in a waived invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in the waived inventions is suspended until approved in writing by DOE.

Referring to item 10 of the waiver petition, granting this waiver will not have an adverse impact on competition. Petitioner asserts numerous other firms have invested in this field and do not have restricted intellectual property rights through the use of government funds. Petition further states the waiver will aid in the pursuit of investors in technologies developed, hence greater competition in the field. Consequently, granting the Petition will not hinder competition in the field.

Considering the foregoing, it is believed that granting this waiver will provide Petitioner with the necessary incentive to invest its resources in the commercialization of the results of the agreement in a fashion which will make the technology available to the public in the shortest practicable 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.

Mcob A. Heafner

Patent Attorney

Intellectual Property Law Division

Date

Brian J. Lally

Deputy Chief Counsel

Intellectual Property Division

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

Dr. Dorman I Millet

Dr. Darren J. Mallot Director of Office of Advanced Fossil Technology Systems, FE-22

Date: 3/7/17

CONCURRENCE:

APPROVAL:

Brian Lally

Assistant General Counsel for Technology Transfer and Intellectual Property, GC-62

Date: 4/3/17