STATEMENT OF CONSIDERATIONS

IDENTIFIED WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS IN THE SUBJECT INVENTIONS MADE BY UNITED TECHNOLOGIES CORPORATION, PRATT & WHITNEY UNDER SUBCONTRACT 5307-PW-DOE-5011 TO PENNSYLVANIA STATE UNIVERSITY DURING PERFORMANCE OF AWARD DE-FE0025011

W(I)-2018-002; CH-1792; S-150,089; U.S. Patent Appl. No. 16/004,692
W(I)-2018-003; CH-1793; S-150,090; U.S. Patent Appl. No. 16/003,755

This waiver request is for domestic and foreign rights in the above identified inventions made by employees of United Technologies Corporation, Pratt & Whitney (hereinafter Petitioner) during the performance a subcontract to award DE-FE0025011. Petitioner has requested the instant patent waivers to obtain clear title to an undivided interest in the above identified inventions.

The objective of the DE-FE0025011 award was to improve gas turbine efficiencies by studying heat transfer and airfoil aerodynamics. Petitioner's subcontract included tasks toward airfoil design and manufacturing feasibility research of airfoils incorporating integrated cooling holes. The cooling holes provide cool air films as insulation from hot inlet gasses due to high turbine inlet temperatures. The S-150,089 invention utilizes pre-drilled core support holes to attach solid cooling hole geometries when casting cooling holes. The S-150,090 invention provides a double wall feature to have film cooling holes upstream and downstream of a double wall to maintain cooling hole length and diameter for optimized cooling.

The funding directed to the subcontract between Pennsylvania State University (PSU) and Petitioner totaled $660,685. There was no cost share under the subcontract. The work was completed at the PSU Steady Thermal Aero Research Turbine (START) facility which was approximately 1/3 funded by Petitioner with an investment greater than $4 Million since 2010. The period of performance was from October, 2016 to June, 2018

Referring to items 5-9 of the waiver petitions, Petitioner has extensive experience in the design and manufacture of gas turbines. Petitioner has more than 13,000 engines currently in active service and has orders for an additional 7,000 engines. Petitioner also previously developed double wall technology and has incorporated the cooling designs into turbine engines. In one demonstration engine, Petitioner states they achieved operating at the highest engine temperature ever achieved. Petitioner intends to continue investment in the PSU START facility.

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). In brief, 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

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 the 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 have little if any adverse impact on competition in this technology. Petitioner asserts the work performed under the contract will use new turbine blade design features that the DOE has already disclosed to the public. Additionally, Petitioner states that by incorporating these designs into their proprietary turbine blade hardware and testing in the PSU START facility, they will gain experience for incorporating these designs into a commercial engine design.

Considering the foregoing, it is believed that granting this waiver will provide the 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.

[redacted]

Jacob A. Heafner
Patent Attorney
Intellectual Property Law Division
DOE CSC-CH

Date: 7/9/2019

[redacted]

Michael J. Dobbs
Deputy Chief Counsel
Intellectual Property Law Division
DOE ISC-CH

Date: 7/12/2019

W(I)2018-002;W(I)2018-003

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.

CONCURRENCE:

[redacted]

Regis K. Conrad
Director
Division of Advanced Energy Systems
FE-221

Date: 2/12/2020

APPROVAL:

[redacted]

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

Date: 2/13/2020