

## STATEMENT OF CONSIDERATIONS

### REQUEST BY BERRY METAL COMPANY (BMC) FOR WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS IN AN IDENTIFIED INVENTION DOE INVENTION NO. S-150,755 MADE UNDER DOE CONTRACT NO. DE-EE0005751; W(I) 2018-008

BMC has requested a waiver of domestic and foreign patent rights of the United States of America to the subject invention entitled "Flash Ironmaking Drop Tube Furnace System" and numbered DOE S-150,755 ("the Subject Invention"). The Subject Invention was made by BMC in the performance of DOE contract number DE-EE0005751 to the American Iron and Steel Institute entitled "A Novel Flash Ironmaking Process." BMC was a subcontractor to the American Iron and Steel Institute under the contract.

The Subject Invention is a drop tube furnace system to reduce iron ore to iron. It is an alternative to the blast furnace process for reducing iron ore to iron. Iron ore concentrate is dropped as small particles in a high temperature hydrogen drop tube furnace. The iron ore is heated, reacted and cooled while falling through the furnace. The Subject Invention is further described in U.S. Patent Application No. 62/717,043.


The total project budget under the contractor was \$15,900,000. Approximately \$600,000 was spent on the Subject Invention. The start date of the project was September 1, 2012 and ended on August 31, 2018.

According to the petition, BMC has over 65 years in the iron and steel industry and technical competence in designing and manufacturing high temperature components for blast furnaces, basic oxygen furnaces, electric arc furnaces, iron smelting furnaces and syngas generation equipment. Its customer base includes over 500 steel and iron mills, foundries and other specialty mills worldwide. It manufactured the large bench scale reactor system used in the early phases of the project in which the Subject Invention was made and has over 75 patents.

Granting of this waiver should have a positive impact on competition. BMC is currently seeking funding and sponsors from iron and steelmaking companies for a pilot plant that may cost between \$18,635,000 and \$28,320,000. The waiver will strengthen BMC's ability to gain funding and partners by ensuring the partners that BMC owns and could license the necessary intellectual property to practice the technology. The Subject Invention is a direct reduced iron process that represents a new competing technology against the existing blast furnace technology. Therefore the waiver would help increase competition rather than decrease it.

The terms of this patent waiver are reflected in the attached confirmatory license to DOE from BMC. The patent waiver is 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. Furthermore, the patent waiver is subject to the standard U.S. competitiveness provision in which BMC must agree that any products embodying or made through the use of the Subject Invention shall be manufactured substantially in the United States. BMC cannot license, assign, or otherwise transfer the Subject Invention to any entity unless that entity agrees to these same requirements.

Upon evaluation of the waiver petition, in view of all the objectives and consideration set forth in 10 CFR 784, all of which have been considered, it is recommended that the requested waiver be granted.

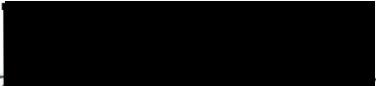
  
Glen R. Drysdale  
Patent Attorney  
EERE

Date: 1/3/19

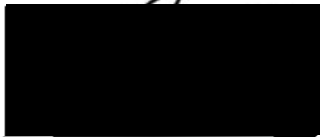
Based upon the foregoing Statement of Considerations and representations in the attached waiver petition, it is determined that the interests of the United States and the general public will best be served by a waiver of patent rights of the scope determined above, and therefore the waiver is granted.

CONCURRENCE:

APPROVAL:

  
Valri Lightner  
Acting Director  
Advanced Manufacturing Office

Date: 1/25/2019

  
Brian Lally  
Assistant General Counsel for Technology  
Transfer and Intellectual Property

Date: 2.1.19