STATEMENT OF CONSIDERATIONS

REQUEST BY UOP LLC FOR WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS IN IDENTIFIED INVENTIONS, DOE DOCKET NOs: S-117,423; S-122,175; S-122,176; S-122,177; MADE UNDER DOE GRANT NO. DE-FG26-04NT42121; Waiver numbers: W(I)2010-006, CH-1560; W(1)2010-003. CH-1557; W(I)2010-004, CH-1556; W(I)2010-005, CH-1559.

Waiver requests by UOP LLC (UOP) are for four (4) identified inventions developed under a grant awarded by the DOE National Energy Technology Laboratory for work entitled, "Carbon Dioxide Separation with Novel Micro-porous Metal Organic Frameworks". The purpose of the grant is to develop a low cost novel sorbent to remove C02 from flue gas and gasification streams in coal fired electric utilities. The sorbent will have high selectivity high adsorption capacity, and good adsorption/desorption rates. Metal organic frameworks (MOFs) are micro-porous, thermally stable materials that have sown exceptional storage capacity for methane and hydrogen.

UOP's request for the identified invention identified with DOE case number S-117,423 is included (as enclosure (1)). The waiver number is W(I)2010-006; CH-1560. S-117,423 relates to the use of Metal Organic Frameworks (MOFs) for C02 capture, and improving the capture capacity of certain MOFs by treating open metal sites with certain liquids, such as water. S117,423 details a process where certain MOFs are dehydrated then rehydrated to specified levels in order to improve the C02 capture capacity.

UOP's request for the identified invention identified with DOE case number S-122,175. The waiver number is W(I)2010-003; CH-1557. S-122,175 describes a new class of block coordination copolymers. The block coordination copolymers are comprised of at least two different coordination polymers and are synthesized to produce a multi-layered crystal structure having a variety of pore sizes, potentially allowing for use in a variety of tailored applications such as separation processes and reaction catalysts.

UOP's request for the identified invention identified with DOE case number S-122, 176. The waiver number is W(I)2010-004; CH-1556. S-122,176 describes methods of making the block coordination copolymers disclosed by DOE case S-122,175.

UOP's request for the identified invention identified with DOE case number S-122,177. The waiver number is W(1)2010-005; CH-1559. S-122,177 describes using the block coordination copolymers disclosed by DOE case S-122,175 to separate a first component in a mixture from a second component in the mixture through contact with the block coordination polymer.

The amount of this grant is $900,000, for a performance period from August 5, 2004 through February 4, 2006. No further government funding of the invention is anticipated: Note that UOP was previously granted an identified waiver for DOE case S-1 06,463 under this grant in 2007 (W(I)-05-022; CH-1333).

UOP is a leading technology licensor of technology for the removal of acid gases such as carbon dioxide from gasification streams in the refining and petrochemical areas. Approximately 120 process units are licensed by UOP yearly with nearly 7,000 individual process units licensed to date. UOP is an industry leader in the gas processing market and offers technology absorption (physical and chemical systems), adsorption (PSA, TSA) and membranes. The technology offerings include polymer membranes for the separation of carbon dioxide from natural gas, a chemical solvent (Benfield™ process) for the removal of carbon dioxide from flue gas, a physical solvent (Selexol^{tm}) for absorbing carbon dioxide, and PSA systems for gas purification and separation. UOP employs approximately 650 scientists and support staff and has world class capabilities in the area of materials synthesis, materials characterization, and catalyst and adsorbent evaluation. UOP states it has developed modeling capabilities and has extensive knowledge in materials science. It has independently invested about $500,000 in the development of the identified inventions, and will invest its technical knowhow in adsorptive separations, molecular modeling and process evaluation in the execution of the work under this contract. Further, UOP states it intends to commercialize metal organic framework materials and develop a process to remove carbon dioxide from flue gas and gasification streams. This demonstrates UOP's commitment to the technology and its intent to further develop and exploit the invention's potential.

As stated in response to question 9, grant of the waiver will allow the petitioner to effectively compete in the U.S. market and enable broad diffusion of the technology throughout the United States, and allow UOP do provide technology to electric utilities for removal of C02 from flue gas. Grant of the waiver may also provide UOP with the incentive to further develop and commercialize low cost sorbents for the removal of carbon dioxide. UOP has agreed to accept the terms of the Large-Business, Confirmatory license, including the Government license, march-in rights and preference for U.S. industry set forth in 35 USC §§ 202,203, and 204. The confirmatory license associated with this invention will also include a paragraph (t) entitled U.S. Competitiveness (attached hereto), in which UOP agrees to substantial U. S. manufacture of subject inventions. Additionally, UOP agrees not to transfer subject inventions to any other entity unless that other entity agrees to these same requirements. The Contractor agrees to submit copies of issued U.S. Patents resulting from waived inventions, and to submit annual reports on the utilization of a waived invention or on efforts at obtaining such utilization that are being made by the Contractor or any of its licensees or assignees.

Upon evaluation of the waiver petition and in view of all 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]
Deputy Chief Counsel
Office of Intellectual Property Law
Date: 8/23/2011

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 described above, and therefore the waver is granted.

CONCURRENCE:

[redacted]/

Mark Ackiewicz
Office of Sequestration Hydrogen and
Clean Coal Fuels Office of Fossil
Energy, FE-223
Date: 8/24/2011

[redacted]

for John T. Lucas
Assistant General Counsel for
Technology Transfer and Intellectual
Property, GC-62
Date: 8/25/2011

(t) 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 the DOE that it is not commercially feasible to do so. In the event the 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 agrees that it will not license, assign or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements. Should the Contractor or other such entity receiving rights in the invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in the waived invention is suspended until approved in writing by the DOE.