

## STATEMENT OF CONSIDERATIONS

REQUEST BY RADIAN INTERNATIONAL LLC FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN INVENTION RIGHTS UNDER DOE COOPERATIVE AGREEMENT NO. DE-FC26-99FT40718; W(A)-99-019, CH-1017

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The Petitioner, Radian International LLC (Radian), was awarded this cooperative agreement for the performance of work entitled, "Furnace Injection of Alkaline Sorbents for Sulfuric Acid Control. Under the cooperative agreement, Radian is to perform a full-scale proof-of-concept testing and demonstration of injecting alkaline materials into the furnace of coal-fired utility boilers to remove sulfuric acid from the flue gas. The coincident removal of hydrochloric acid and hydrofluoric acid from the flue gas will also be measured. According to the Statement of Work, this work is to be conducted by Radian, as project manager, and team members EPRI, First Energy Corporation (First Energy), The Tennessee Valley Authority (TVA), and the Dravo Lime Company. EPRI will provide additional project management and technical direction to the project, First Energy and TVA will provide host sites for the testing, and Dravo Lime will provide one or more sorbents to be tested and some equipment to be used to conduct the tests. This waiver is only for any inventions made by Radian under this cooperative agreement.

The total estimated cost of the cooperative agreement is about \$1,744,810, with the DOE share being 1,160,549. Cost sharing of the project for Radian is \$584,261, or about 33.49. It is anticipated that the length of this subcontract will be eighteen months, from September 1999 until June 2001.

In its response to questions 4 and 5 of the attached waiver petition, Radian has shown significant technical competence in developing technologies that further advance the art and science of sulfuric acid removal from coal fired boilers. Radian, and the team members, have previously conducted bench-, pilot-, and full-scale research of in-furnace and post-combustion sulfuric acid technologies. Sites where related testing has been conducted include Radian's laboratories in Austin, Texas, EPRI's former Environmental Control Technology Center in Somerset, NY; First Energy's Bruce Mansfield Plant in Shippingport, PA; Indianapolis Power and Light's Petersburg Station in Petersburg, Indiana, TVA's Paradise Fossil Plant and others. Cover pages or first pages of a number of technical reports, technical papers, and other documents are attached to the waiver petition to provide evidence of the petitioner's prior experience and know-how. Radian has a substantial commercial position providing technology and turnkey, engineered systems for coal-fired electric utility units, currently offering three technologies (SynGyp™, SynGyp AS™, and OverScrub™) that lower emissions and/or increase the use of emissions control byproducts while lowering the overall cost of electricity produced. Radian has completed or has underway four projects totaling \$100 million in capital cost. No sales have been to the U.S. Government. Brochures for the SynGyp™ and OverScrub™ technologies are attached to the waiver petition as evidence of Radian's commercial position. The sulfuric acid technology that is the subject matter of this cooperative agreement is of similar or lesser scope than the cited current Radian projects, similarly involves acid gas removal technology, and would require similar resources to market, engineer, finance, procure, install and start up.

From its response to question 9, Radian indicates that there will be a positive effect on competition and market concentration by grant of the waiver because of competing technologies that can be used to lower sulfuric acid emissions from coal-fired utility boilers; and because much of the technology to be tested as part of this effort is already publicly available as a result

of pervious research related to the in-furnace control of sulfur dioxide emissions. Any invention resulting from this research and development effort will likely be related to enhancements of this publicly available technology. Even with the waiver, Radian believes that competition will be enhanced because others will attempt to apply the general technology on the basis of currently available information.

The subject cooperative agreement will be modified to add the Patent Rights--Waiver clause in conformance with 10 CFR 784.12. This waiver clause will also include a paragraph entitled U.S. Competitiveness, in which Radian agrees to substantial U. S. manufacture of subject inventions (attached hereto). Additionally, Radian agrees not to transfer subject inventions to any other entity unless that other entity agrees to these same requirements. The petitioner has further agreed to modification of the data clause of the subject cooperative agreement (48 C.F.R. 952.227-14) by adding paragraph (k), Alternative VI, concerning contractor licensing of data.

Considering the foregoing, it is believed that granting the waiver will provide the Petitioner with the necessary incentive to invest resources in the commercialization of the results of the agreement in a fashion which will make the agreement's benefits available to the public in the shortest practicable time. In addition, it would appear that grant of the above requested waiver would not result in an adverse effect on competition nor result in excessive market concentration. Therefore, 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, as set forth above, be granted.

[Redacted Signature]

Mark P. Dvorscak  
Assistant Chief Counsel  
Office of Intellectual Property Law

Date Jan 12 2000

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

CONCURRENCE

[Redacted Signature]

David Beecy FE-72  
Director, Office of Advanced Research  
Coal and Power Systems

Date 3/2/00

[Redacted Signature]

Paul A. Gottlieb  
Assistant General Counsel  
for Technology Transfer and  
Intellectual Property

Date 3-15-00

(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.