

April 1, 2009

Professor Derek Lovley
Department of Microbiology
203 Morrill Science Center IVN
University of Massachusetts
639 North Pleasant Street
Amherst, MA 01003

SUBJECT: Grant application entitled “Coupled *In Silico* Microbial and Geochemical Reactive Transport Models: Extension to multi-organism communities, upscaling and experimental validation”

Dear Derek:

I am writing to express my support for the subject proposal, and my willingness to facilitate collaboration between your proposed project and the ongoing field research that I am managing at the Integrated Field Research Challenge (IFRC) site in Rifle, CO. At the IFRC, we are performing a wide range of field and related laboratory research on microbially-mediated uranium reduction as a bioremediation strategy. Many of the research questions of interest at the Rifle site are directly relevant to the hypotheses in your proposal and offer a multitude of opportunities for synergistic collaboration.

In particular, we are very interested in microbial controls on the transition from iron-reducing to sulfate-reducing conditions that we have observed in our field experiments. Your proposed work on multi-organism, multi-function communities has the potential to shed new light on the role of microbial community dynamics in this transition, and to provide a better means of quantitatively modeling the key processes. The ability to quantitatively model and predict the impacts of bioremediation strategies is of great importance to our project, and we have been developing advanced reactive transport models of the site as part of our research. We are very interested in the continued incorporation of your advanced microbial metabolism models into our reactive transport models, as has been successfully initiated under your current project. Finally, we are conducting a number of targeted column experiments using site sediments to address specific research issues; these experiments provide an excellent opportunity to rigorously test the predictive effectiveness of your coupled *in silico* – reactive transport models under more tightly controlled and better characterized conditions. We envision

Dr. Derek R. Lovley

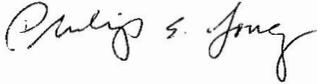
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that you will provide design support for future experiments, and will utilize the experimental observations to test your model predictions, and we look forward to potential co-investment between our projects in this area.

Our collaboration with you thus far has been fruitful and mutually beneficial, and we look forward to the possibility of continuing this collaborative work in the future.

Sincerely,

A handwritten signature in black ink, reading "Philip E. Long". The signature is written in a cursive style with a large initial "P" and a long, sweeping underline.

Philip E. Long

Staff Scientist and Principal Investigator for the Rifle, Colorado IFRC
Energy and Environment Directorate