

EXECUTIVE SUMMARY [NON-CONFIDENTIAL, NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]: The study of microbial life-forms and the extreme environments in which they live on Earth can provide insights into: (1) how life may have evolved in the extreme physical and chemical conditions dominating the early earth, (2) how microorganisms adapt to diverse environments, and (3) how microorganisms play a role in shaping these environments chemically, geologically, and physically. The hot springs, steaming fumaroles, boiling mudpots, and sulfurous vents of Lassen Volcanic National Park (LVNP) represent some of the most extreme life-supporting habitats on earth with temperatures from 50°C-115°C, and pH from 0-3. The proposed project is an essential component of a long-term research plan at LVNP to investigate the interactions between biotic and abiotic processes in geochemical cycling in these environments. The biology of all geothermal areas is largely unknown, and no microbiological work has been done to complement the geochemical work at LVNP. We are ultimately interested in using the information gained through this project to develop an exhibit or brochure for the Loomis Museum at LVNP. This will be an ideal way to unite students interested in graphic design, art, computers, and microbiology to create a display that would excite the public about life in boiling acid. Since we began our careers in microbiology, we have been dedicated to educating the public that microorganisms are more than the germs they learned to fear in their youth!