

Letter of Interest to the South Dakota Science and Technology Authority (SDSTA) for the Homestake Deep Underground Science and Engineering Laboratory (DUSEL)

December 9, 2005

To Homestake DUSEL team:

I would like to be a team member of the scientists investigating Ecology/Geomicrobiology Collaboration for Microbial Evolution. Research I would be interested in conducting at DUSEL would include investigating microbial ecology in the deep subsurface. What membrane lipids (lipids and quinones) are present? How does temperature and pressure change membrane composition for increasing membrane stability? How do they play in the metabolic processes of electron flow? Do they differ between sites within the mine? How do they compare with surface/near surface organisms, and other extremeophiles (thermophiles, and peizotrophic bacteria)? Other areas of research include utilizing stable isotope probing to assess which biogeochemical processes are active, who is incorporating ^{13}C label into membrane components and DNA, and investigating of the spatial relationships of bacteria to minerals using confocal microscopy and FISH.

Sincerely,

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