Electrifying Lake Mud, Part 4! More Power

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Based on the last three years of research into alternative energy sources using microbial fuel cells (MFC) that answered which Utah lake mud, which electrode material, and which diameter generated the most electricity in a steady state, this year focused on improved electrical generation using a Nafion NR212 Ion Exchange Membrane by varying anode and cathode spacing and by varying the membrane location between the anode and cathode to understand if any of the spacing resulted in a correlation of increasing power generation. The project was conducted using 16 MFC containers measuring 7.5 cm3, built from Plexiglass and sealed to hold in the moisture in hopes of extending the operating life. The anode and cathode were spaced with deltas of 1 cm, 3 cm, and 5 cm, and membrane spacing starting with full contact with the anode, then spaced with 1 to 3 locations until full contact with the cathode. The results did not completely match the hypothesis but did show that membrane placement had some impact on power generation. The key correlation was shown with the delta spacing between the anode and cathode. A key observation came from the voltage data collected which highlighted that the 16 MFC generated a total of 9 volts DC, proving that equipment in remote locations can be powered freely from Great Salt Lake Mud!

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