

National Aeronautics and
Space Administration
Ames Research Center
Moffett Field, CA 94035-1000



Reply to Attn of: 262-2

May 20, 2007

David Bychkov
7432 Emerald Drive
Manassas, VA 20109

To whom it may concern:

I am a research psychologist at NASA Ames Research Center currently working within the Human Research Program. The primary goal of this program is investigating and mitigating the risks to human health and performance in support of NASA's space exploration missions. Over the past two years my colleagues and I have conducted studies with astronauts and scientists in space analog environments; i.e., an undersea habitat in Florida and the Mars Desert Research Station (MDRS) in Utah, to examine isolation and confinement, workload, and other factors that may affect human adaptation in extreme and hostile environments. An important aspect of this work involves real-time monitoring of crew physiology while they are performing critical mission activities. In the MDRS study, three different ambulatory monitoring systems were provided to crew for measuring their physiological responses during a 14 day mission. An important objective of the study was to evaluate each system on comfort and non-interference, ease of operation, and data quality. Four crewmembers were required to wear the monitors a minimum of 8 hours a day on three different mission days. An analysis of crew questionnaire data indicated that the Exmocare bio-watch was more unobtrusive when performing mission tasks and was easier to operate than the other monitors; however, data quality of the bio-watch was less accurate. Exmocare provided a beta release of the bio-watch analysis software for the MDRS study. A software upgrade with improvements in signal processing is currently available. In the near future, we are planning further tests with the new bio-watch (version BT2) and software in other operational field studies. We appreciate the support of the Exmocare staff on this very important NASA research.

Please be advised, that my comments above, do not give permission to Exmocare to use the name "National Aeronautics and Space Administration or the letters "NASA" in connection with a product or service in a manner that conveys an impression that Exmocare's products or services have the authorization, support, sponsorship, or endorsement of NASA, which does not, in fact, exist. With the exception of the release of general information regarding NASA's experience with Exmocare's equipment, any

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Respectfully,

A handwritten signature in cursive script that reads "Will Toscano".

William Toscano, Ph.D.
NASA Ames Research Center M.S. 262-2
Moffett Field, CA 94035