



EURO-CARES WP3 Meeting

Designing a European Extraterrestrial Sample
Curation Facility

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Some Technology Challenges for a Facility Handling Samples from Mars

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The presenter (Sandy Ellis) will provide a summary of an innovative design solution which was engaged by JPL/NASA for the Mars Sample Return Facility. This US-based located facility is one of three approaches commissioned by NASA/JPL typical of their project analysis and development process. Merrick’s solution provided a hybrid solution that started with the field capture method of the returning vehicle transported to the sample return facility. The presenter will discuss the hybrid approach of cabinet-line glove-boxes, combined with traditional BSL4 space used for testing of the sample. Unique to the design process included specialized (Merrick patent) double-gloves used in the glovebox design, decontamination systems and specialized chemical/biological positive-air HEPA filtered suits. In addition, Sandy will provide an outline of the various mechanical and electrical solutions contemplated for the new facility. These systems and design approach have been based on proven technologies used in high containment applications which have been customized by Merrick and its technical Life Sciences Team. The presenter will conclude the presentation providing an assessment to the risks associated with a facility of this nature. Of course, the primary goals of conducting safe-science and protecting the samples and the Earth are fundamental pillars of the project’s success.

Keywords: Glovebox, BSL4, Decontamination, Double-gloves, Safe-science