

# **SUPPORT FOR CONSULTANT/SUBCONTRACTOR REQUEST**

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## **RATIONALE FOR USING AND PROGRAMMATIC IMPACT OF NOT USING CONSULTANT/SUBCONTRACTOR:**

The RDTME KTI is currently under-allocated in terms of CNWRA and SwRI personnel to work on this KTI. Deliverables will be at risk of not being met if additional resources are not added to these projects.

## **STATEMENT OF WORK:**

Conduct fracture studies, including in situ block size distribution analysis and generation of irregular fracture pattern using the computer code STEREOBLOCK. Since fracture patterns may have significant variations within the repository at YM depending on the nearby stratigraphic and faulting characteristics, it is necessary to consider an array of fracture patterns to address spatial variability. Block size distribution for each fracture pattern should be estimated. Such analyses should utilize fracture data in the host rock formation of the proposed repository collected through various site characterization activities by the Department of Energy (DOE). These may include (but should not be limited to) information collected through: (i) borehole exploration, (ii) surface mapping, and (iii) full-periphery geological mapping and detailed line survey in the ESF.

## **LIST OF ELIGIBLE CONSULTANTS/SUBCONTRACTORS CONSIDERED:**

There is not an abundance of rock mechanics or mining engineers with experience and tools in fracture analysis. Most people use commercial software for such analyses which appear to be inadequate because most existing commercial software will need to be modified to meet the technical requirements of the current task.

## **RATIONALE FOR SOLE/SINGLE SOURCE SELECTION:**

The proposed consultants are the only ones considered because they are the only ones that we know of who is familiar with state of knowledge in fracture studies, in situ block size distribution analyses, and generation of irregular fracture patterns; and have their own software to conduct such tasks with flexibility to modify the software to meet project needs when it is necessary.

## **RATIONALE FOR NOT USING SwRI RESOURCES:**

There is no SwRI personnel familiar with state of knowledge in fracture and in situ block size analyses, proper tools for such analyses, and available to work on the project in a timely and cost-effective manner.

## **PROGRAMMATIC IMPACT ON CNWRA WORK:**

The proposed consultants will be assigned tasks that will directly contribute to the timely completion of NRC deliverables.