



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

July 30, 1998

Dr. H. Larry McKague, Manager  
Geology/Geophysics Program Element  
Center for Nuclear Waste Regulatory Analyses  
6220 Culebra Road, Building 189  
San Antonio, Texas 78238-5166

SUBJECT: ACCEPTANCE OF "3DSTRESS USER'S GUIDE FOR VERSION 1.3,"  
INTERMEDIATE MILESTONE 20-1402-472-890

Dear Dr. McKague:

The subject report, in the form of a user's guide to computer software, "3DSTRESS User's Guide for Version 1.3," listing David Ferrill as the technical support contact, was submitted by letter dated June 26, 1998, from H.L. McKague to P.S. Justus, in fulfillment of Intermediate Milestone 20-1402-472-890. The report was delivered a few days earlier than the June 30th due date.

The User's Guide is the latest version of the award-winning 3DSTRESS and supersedes all previous versions. This latest version now includes Mohr Circle capabilities and the capability to calculate the leakage factor of a fracture. The leakage factor is a relative estimate of the tendency for a fracture to dilate when both pore fluid pressure and fracture tensile strength are known or inferred. When the fluid pressure exceeds the sum of the stress normal to the fracture and the tensile strength of the fracture, the feature has a dilation tendency, and fluid may migrate into it. Further, rockmass properties in the Hoek-Brown system may be input into the strength portion of the code. These enhancements may make the code more applicable to problems of fracture flow and fracture stability.

We have performed a programmatic review of the subject report and find that it fulfills the requirements in the Operation Plans. I consider the Operation Plans requirement for such a manual to be met. However, we will not be able to complete our technical review until we get the code up and running on our CRADAL system. When you complete the Center for Nuclear Waste Regulatory Analyses' requirements for quality control of software (TOP-018), now scheduled for August 17, 1998, and we receive the tapes of the code, we will commence our technical review. Until then, the subject report should not be released to the Public Document Room (PDR).

We further acknowledge receipt of two letters on the subject report from you, as follows: (1) letter dated July 16, 1998, from McKague to Justus; subject: typographical error; and (2) *ibid.*, dated July 17, 1998; subject: abstract of the User's Guide. The first encloses an adhesive paper, sent to all recipients of the subject report, to be affixed to the equation of dilation tendency on Page 4 of the User's Guide. This sticker should not be placed in the PDR until the subject report is released to the PDR. The second letter encloses an abstract written in WordPerfect 8.0 and on a floppy disk. This meets the requirement that abstracts be submitted in WordPerfect, a matter that could not be accomplished on the Silicon Graphics machine used to develop the User's Guide. This letter and disk may be placed in the PDR now.

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Further, we acknowledge your positive response to our request that the User's Guide be amended to include a section instructing users on how to input data from various sources and of various formats. You agreed to include such a section in the Help File embedded in the code to be sent by August 17. You volunteered to send out a written supplement or appendix to the User's Guide on the matter of inputting data. These are acceptable. It is understood, as a practical matter, that a subsequent edition of the written User's Guide will contain such information. It is also my understanding that this addition to the tape and supplements to the Guide will not increase cost or delay schedule of this or other deliverables.

I conducted the programmatic review and expect to complete the technical review by October 10, 1998.

Sincerely,

Original Signed By

Philip S. Justus  
GLGP Program Element Manager  
Engineering and Geosciences Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

cc: J. Linehan  
B. D. Meehan  
B. Caudle

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