

SOFTWARE RELEASE NOTICE

1. SRN Number:		
2. Project Title: MULTFRAC Version 1.0		Project No.
3. SRN Title: MULTFRAC Version 1.0		
4. Originator/Requestor: A.B. Gureghian		Date: 6/14/2000
5. Summary of Actions		
<input type="checkbox"/> Release of new software <input type="checkbox"/> Release of modified software: <input type="checkbox"/> Enhancements made <input type="checkbox"/> Corrections made <input type="checkbox"/> Change of access software <input checked="" type="checkbox"/> Software Retirement		
6. Persons Authorized Access		
Name	Read Only/Read-Write	Addition/Change/Delete
7. Element Manager Approval: Gordon Wittmayer		Date: 6/15/2000
8. Remarks: This program is longer used for NRC work.		

CNWRA INFORMATION PROCESSING STANDARD SOFTWARE SUMMARY

01. Summary Date			02. Summary prepared by (Name and phone)			03. Summary action		
Yr.	Mo.	Day	A. B. Gureghian (512)522-5249			New	Replacement	Deletion
97	01	07	03. Software title			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04. Software Date			MULTFRAC: Analytical Solution and local sensitivities for one-dimensional Transport in a layered fractured rock			Previous Internal Software ID		
Yr.	Mo.	Day						

06. Short title			07. Internal Software ID		
MULTFRAC V1.0			Version 1.0		

08. Software type		09. Processing Mode		10. APPLICATION AREA								
				General		Specific						
<input type="checkbox"/> Automated Data System	<input type="checkbox"/> Computer Program	<input type="checkbox"/> Subroutine/Module	<input type="checkbox"/> Interactive	<input checked="" type="checkbox"/> Batch	<input type="checkbox"/> Combination	<input type="checkbox"/> Computer Systems Support/Utility	<input checked="" type="checkbox"/> Scientific/Engineering	<input type="checkbox"/> Bibliographic/Textual	<input type="checkbox"/> Management/Business	<input type="checkbox"/> Process Control	<input type="checkbox"/> Other	Nuclear Waste Isolation Analysis

11. Submitting organization and address						12. Technical contact(s) and phone					
CNWRA Southwest Research Institute						Dr. A. B. Gureghian (512)522-5249					

13. Narrative
 The MULTFRAC code computes the one dimensional, space-time-dependant, non-dispersive transport of a single radionuclide in a layered system of saturated planar fractures coupled with diffusion into the adjacent rock matrix. Module 1 predicts the concentrations within the fracture network and the surrounding rock matrix, including the cumulative mass at an arbitrary observation point in the fracture. Module 2 predicts the analytical and numerical local sensitivities of the concentration and cumulative mass in the fracture. The closed form solutions of the differential equations are obtained by the Laplace Transform method.

14. Keywords
 Radionuclide Transport, Analytical solutions, Adirection, Diffusion, Retardation Radioactive Decay, Decaying Source, Periodically fluctuating source, non-zero initial concentrations, concentrations, cumulative mass, fracture, rock matrix, Laplace Transform

15. Computer manufacturer and model		16. Computer operating system		17. Programming language(s)		18. Number of source program statements	
VAX 5750		VAX/VMS Version 4.7		FORTRAN 77			
19. Computer memory requirements		20. Tape drives		21. Disk/Drum units		22. Terminals	
Actual Words							

23. Other operational requirements

24. Software availability			25. Documentation availability		
Available	Limited	In-house only	Available	Inadequate	In-house only
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. FOR SUBMITTING ORGANIZATION USE