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CENTER FOR NUCLEAR WASTE
REGULATORY ANALYSES

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Title:

Radionuclide Chemistry in Reduced Groundwaters: Implications for the Performance of a Proposed High-Level Waste Nuclear Repository at Yucca Mountain, Nevada

Researchers:

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Objectives:

The objectives of this work were to i) evaluate the release of radionuclides to the critical group at 20 km at the proposed high level waste repository at Yucca Mountain by conducting sensitivity analyses of selected variables using the TPA 3.2 Total System Performance Assessment Code developed by the CNWRA and ii) to prepare and present a paper on the findings for the Materials Research Society (MRS) Annual Meeting in the Fall of 1999 at Boston, Massachusetts.

Computer Analyses:

The sensitivity analyses were each conducted for a 50,000 year period, with 250 realizations, and results reported for the 20km critical group using the TPA version 3.2 computer code. Sensitivity analyses were conducted for the following cases: i) Case 1: Base Case with values set to the nominal values assigned for the Base Case by TSPA code 3.2. The *tpa.inp* file for the Base Case run is shown in Figure 1 as *tpa1.inp*.wpd.; ii) Case 2: Enhanced SolubilityTc - technetium was selected as a representative radionuclide for these computer runs. In the Enhanced Solubility Case only the value assigned to the solubility of Technetium was changed with all other values in the Base Case remaining the same. Technetium solubility was changed from $9.73e^{1}$ kg/m^3 in the Base Case to a more realistic value of $3e^{-7}$ kg/m^3 in Enhanced SolubilityTc Run. The *tpa.inp* file for the Enhanced SolubilityTc case is shown in Figure 2 as *tpa2.inp.wpd.*; iii) Case 3: Enhanced TcRD - In the Enhanced TcRD Case only the values for AlluviumMatrixRD_SAV_Tc and ImmobileRD_STFF_Tc were changed from the Base Case values. AlluviumMatrixRD_SAV_Tc was changed from a constant 1.0 to $1.64e^{4}$ while ImmobileRD_STFF_Tc was changed from a loguniform variance of 1 to 30 to a constant $2.45e^{5}$. The *tpa.inp* file for the Enhanced TcRD case is shown in Figure 3 is shown as *tpa3.inp.wpd.*; iv) Case 4: Enhanced Solubility and Enhanced TcRD - The variables changed in Case 2 and Case 3 were changed in the same run, Case 4. The *tpa.inp* file for the Enhanced TcRD and SolubilityTc case is shown in Figure 4 as *tpa4.inp.wpd.*; v) Case 5: Enhanced Canister Failure - The Enhanced Canister Failure Case involved the selection of Alloy 625 as the canister material. Because Alloy 625 corrodes more quickly than Alloy C-22 there are earlier (than 10,000 years) canister failures which release radionuclides at earlier times than the Base Case (which uses Alloy C-22 as the canister material). The *tpa.inp* file for the Enhanced Canister Failure Case is shown in Figure 5 as *tpa5.inp.wpd.*; vi) Case 6: Enhanced SolubilityTc, Enhanced TcRD, and Enhanced Canister Failure - Case Six changes the variables modified in Case Two, Case Three, and Case Five all in the same run. The *tpa.inp* file for the Enhanced SolubilityTc, Enhanced TcRD, and Enhanced Canister Failure Case is shown in Figure 6 as *tpa6.inp.wpd.*; vii) Case 7: Enhanced Canister Failure and Enhanced SolubilityTc - the changes made in Case 2 and case 5 were simultaneously made in Case 7. The *tpa.inp* file for

the Enhanced SolubilityTc, and Enhanced Canister Failure Case is shown in Figure 7.; viii) Case 8: Enhanced TcRD and Enhanced Canister Failure - The changes made in Case 3 and Case 5 were made simultaneously in the Case 8 run. The *tpa.inp* file for the Enhanced TcRD and Enhanced Canister Failure Case is shown in Figure 8 as *tpa8.inp.wpd.*; ix) Case 9: Enhanced AlluviumMatrixRD_SAV_Tc - The Base Case was changed to have AlluviumMatrixRD_SAV_Tc be a constant $1.6e^{4}$. The *tpa.inp* file for the Enhanced AlluviumMatrixRD_SAV_Tc is shown in Figure 9 as *tpa9.inp.wpd.*; and x) Enhanced ImmobileRD_STFF_Tc - The Base Case was changed to have ImmobileRD_STFF_Tc be a constant of $2.4e^{5}$. The *tpa.inp* file for the Enhanced ImmobileRD_STFF_Tc is shown in Figure 10 as *tpa10.inp.wpd.*

The output file *gwpkdos.res* was used to evaluate the radiation dose attributable to Tc. All 10 of the *gwpkdos.res* files are contained on the accompanying CD ROM and are identified as *gwpddos1.res* through *gwpkdos9.res* and *gwpkds10.res* for Cases 1 through 10 discussed earlier..

On page 63 and 64 the release of radiation due to Technetium (Tc) at 20 kilometers for each of the 10 different cases is graphed for each of the 250 realizations run for each case. The data used construct these graphs is found in the files *gwpkdos1.res* through *gwpkdos9.res* and *gwpkds10.res.*

On Page 65 is a CDROM which contains the files generated for this effort. Files are in folder Tpa-chem. 03/27/00 [illegible]

Base Case

Tpa1.inp.wpd

```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
Code.
 Base case data set Rev 3.2.1   2/22/99
**
**          ***>>>  GLOBAL PARAMETERS   <<<***
**
**
**
**          ***>>>  Disruptive Scenario flags  <<<***
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**          ***>>> Subarea Size  <<<***
**
**
** Number and Location Of SubAreas[m] Based On
Fig3.4-1 in TRPA95
**subarea
**1
**ZONE T="ONE RECTANGULAR ZONE SUBAREA", F=POINT
**547405.7        4076362.2
**548469.3        4076362.2
**548469.3        4079237.8
**547405.7        4079237.8
**547405.7        4076362.2
subarea
7
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548069.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547473.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078968.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547887.3, 4077238.1
547995.0, 4076338.9
547670.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartAtSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**          ***>>> Nuclides and Chains  <<<***
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides [Pu242, Am242m,
Pu238, Cm243,
** U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
**  Cs137, Sn126, Sn121m, Ag108m, Pd107, Mo93, Zr93,
Sr90, or Ni63)
**  are added to the basecase set, then corresponding
RDs, KDs,
**  solubilities, gap fractions, and correlations must
be added.
**
iflag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**   number of nuclides, number of chains
20
13
**
**   chain 1
2
Cm246
U238
**   chain 2
3
Cm245
Am241
Np237
**   chain 3
2
Am243
Pu239
**   chain 4
1
Pu240
**   chain 5
4
U234
Th230
Ra226
Pb210
**   chain 6
1
Cs135
**   chain 7
1
I129
**   chain 8
1
Tc99
**   chain 9
1
Ni59
**   chain 10
1
C14
**   chain 11
1
Se79
**   chain 12
1
Nb94
**   chain 13
1
Cl36
**
endofnuclides
**
**
**          ***>>>  Parameter Sampling  <<<***
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
constant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**          ***>>>  Simulation Times  <<<***
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
201
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
200
**
constant
RatioOfLastToFirstTimeStepAfterCompliancePeriod
100.0
**
**
**     ***>>>  Output Print Options  <<<***
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**   0 = append all files
**   1 = uzflow.ech and uzflow.rlt only
**   2 = nfenv.ech and nfenv.rlt only
**   3 = ebsfail.ech and ebsfail.rlt only
**   4 = seismo.ech and seismo.rlt only
**   5 = faulto.ech and faulto.rlt only
**   6 = volcano.ech and volcano.rlt only
**   7 = ebsrel.ech and ebsrel.rlt only
**   8 = uzft.ech and uzft.rlt only
**   9 = szft.ech and szft.rlt only
**   10 = dcagw.ech and dcagw.rlt only
**   11 = ashpluno.ech and ashpluno.rlt only
**   12 = ashrmovo.ech and ashrmovo.rlt only
**   13 = dcags.ech and dcags.rlt only
**   14 = ashpluse.cum only
**   15 = failt.cum only
**   16 = nefiluz.cum only
**   17 = releaset.cum only
**
iconstant
SelectAppendFiles
0
**
**
**          ***>>> UZFLOW  <<<***
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPandMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**          ***>>> NFENV  <<<***
**
iflag
TabularTemperatureRHFlag(yes=1,no=0)
0
**
iconstant
nsetUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseReflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionOfCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MassDensityofYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
840.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
100001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasket&SPimWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**          ***>>>  EBSFAIL   <<<***
**
constant
OuterWPThickness[m]
0.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
DryOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoefOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-95.2
**
constant
TempCoefOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
1040.0,          1240.0
**48.5, 148.5  >>> 625 <<<
**
constant
TempCoefOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
0.0
**-160.8   >>> 625 <<<
**
constant
TempCoefOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_1[C/m2/yr]
3.15e5
**
uniform
AA_2_1[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefForLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetForLocCorrOfOuterOverpack
0.45
**
constant
HumidAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.9
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[moL/L]
3.0e-4
**
constant
CritChlorideConcForSecondLayer[moL/L]
1.0
**3.0e-2  >>> 625 <<<
**
uniform
```

Base Case

Tpa1.inp.wpd

```
ChlorideMultFactor
1.0, 30.0
**
constant
ReferencepH
9.0
**
constant
WPsurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PoronityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**          ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceforSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
0.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.600
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSw2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding "_"
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**          ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
lognormal
FowFactor
0.01, 3.0
**
lognormal
FmultFactor
0.01, 0.2
**
constant
SubAreaWetFraction
1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectiveFractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnsetTemperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate[kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_Am
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.21e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionForNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionForTH230
0.0
**
constant
GapFractionForRA226
0.0
**
constant
GapFractionForPB210
0.0
**
constant
GapFractionForCS135
0.06
**
constant
GapFractionForI129
0.06
**
constant
GapFractionForTC99
0.01
**
constant
GapFractionForNI59
0.0
**
constant
GapFractionForCL36
0.12
**
constant
GapFractionForC14
0.1
**
constant
GapFractionForSE79
0.06
**
constant
GapFractionForNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransFrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
ClaSC-14InventoryPerKgSF[ci]
4.89e-4
```

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```
**
constant
SysOxideAndCrudC-14InvPerKgSF[ci]
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
9.93e1
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e-5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.9e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**                SFWettedFraction_(failurekind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=ebsfilt,1=bypass-ebsfilt)
0
**
constant
InvertRockPorosity
0.3
**
constant
InvettThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**
**          ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSw_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_PPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCF_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BPw_Am[m3/kg]
4.1e+00  3.7e+06
**
lognormal
MatrixKD_UPZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSw_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCF_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BPw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UPZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSw_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCF_I[m3/kg]
0.0
**
constant
MatrixKD_BPw_I[m3/kg]
0.0
**
constant
MatrixKD_UPZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSw_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCF_Tc[m3/kg]
0.0
**
constant
MatrixKD_BPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UPZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cl[m3/kg]
0.0
**
constant
MatrixKD_BPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UPZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cm[m3/kg]
0.0
**
constant
MatrixKD_BPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UPZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSw_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCF_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BPw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UPZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSw_Pu[m3/kg]
2.3e-02  2.2e+01
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCF_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BPw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UPZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSw_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCF_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BPw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UPZ_Th[m3/kg]
4.5e-05  2.3e+03
**
loguniform
MatrixKD_TSw_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCF_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UPZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCF_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UPZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCF_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UPZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCF_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UPZ_Ni[m3/kg]
```

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```
5.0e-6, 0.50
**
constant
MatrixRD_TSw_C[m3/kg]
0.0
**
constant
MatrixRD_CHnvC[m3/kg]
0.0
**
constant
MatrixRD_CHnzC[m3/kg]
0.0
**
constant
MatrixRD_PPw_C[m3/kg]
0.0
**
constant
MatrixRD_UCF_C[m3/kg]
0.0
**
constant
MatrixRD_BFw_C[m3/kg]
0.0
**
constant
MatrixRD_UFZ_C[m3/kg]
0.0
**
loguniform
MatrixRD_TSw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_CHnvSe[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixRD_CHnzSe[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixRD_PPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_UCF_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_BFw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_UFZ_Se[m3/kg]
3.0e-7, 0.030
**
constant
MatrixRD_TSw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixRD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixRD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_UCF_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_BFw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_UFZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCF_Am
1.0
**
constant
FractureRD_BFw_Am
1.0
**
constant
FractureRD_UFZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCF_Np
1.0
**
constant
FractureRD_BFw_Np
1.0
**
constant
FractureRD_UFZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCF_I
1.0
**
constant
```

```
FractureRD_BFw_I
1.0
**
constant
FractureRD_UFZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCF_Tc
1.0
**
constant
FractureRD_BFw_Tc
1.0
**
constant
FractureRD_UFZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCF_Cl
1.0
**
constant
FractureRD_BFw_Cl
1.0
**
constant
FractureRD_UFZ_Cl
1.0
**
constant
FractureRD_TSw_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCF_Cm
1.0
**
constant
FractureRD_BFw_Cm
1.0
**
constant
FractureRD_UFZ_Cm
1.0
**
constant
FractureRD_TSw_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCF_U
1.0
**
constant
FractureRD_BFw_U
1.0
**
constant
FractureRD_UFZ_U
1.0
**
constant
FractureRD_TSw_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCF_Pu
1.0
**
constant
FractureRD_BFw_Pu
1.0
**
constant
FractureRD_UFZ_Pu
1.0
**
constant
FractureRD_TSw_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
**
```

```
constant
FractureRD_UCF_Th
1.0
**
constant
FractureRD_BFw_Th
1.0
**
constant
FractureRD_UFZ_Th
1.0
**
constant
FractureRD_TSw_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPw_Ra
1.0
**
constant
FractureRD_UCF_Ra
1.0
**
constant
FractureRD_BFw_Ra
1.0
**
constant
FractureRD_UFZ_Ra
1.0
**
constant
FractureRD_TSw_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPw_Pb
1.0
**
constant
FractureRD_UCF_Pb
1.0
**
constant
FractureRD_BFw_Pb
1.0
**
constant
FractureRD_UFZ_Pb
1.0
**
constant
FractureRD_TSw_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPw_Cs
1.0
**
constant
FractureRD_UCF_Cs
1.0
**
constant
FractureRD_BFw_Cs
1.0
**
constant
FractureRD_UFZ_Cs
1.0
**
constant
FractureRD_TSw_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPw_Ni
1.0
**
constant
FractureRD_UCF_Ni
1.0
**
constant
FractureRD_BFw_Ni
1.0
**
constant
FractureRD_UFZ_Ni
1.0
**
constant
FractureRD_TSw_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPw_C
1.0
**
constant
FractureRD_UCF_C
1.0
**
constant
FractureRD_BFw_C
1.0
**
constant
FractureRD_UFZ_C
1.0
**
constant
FractureRD_TSw_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
1.0
```

```
**
constant
FractureRD_PPw_Se
1.0
**
constant
FractureRD_UCF_Se
1.0
**
constant
FractureRD_BFw_Se
1.0
**
constant
FractureRD_UFZ_Se
1.0
**
constant
FractureRD_TSw_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPw_Nb
1.0
**
constant
FractureRD_UCF_Nb
1.0
**
constant
FractureRD_BFw_Nb
1.0
**
constant
FractureRD_UFZ_Nb
1.0
**
lognormal
MatrixPermeability_TSw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCF_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BFw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UFZ_[m2]
1.8e-18, 2.1e-16
**
constant
MatrixPorosity_TSw_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCF_
0.28
**
constant
MatrixPorosity_BFw_
0.12
**
constant
MatrixPorosity_UFZ_
0.12
**
constant
MatrixBeta_TSw_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPw_
1.5
**
constant
MatrixBeta_UCF_
1.4
**
constant
MatrixBeta_BFw_
1.7
**
constant
MatrixBeta_UFZ_
2.3
**
constant
MatrixGrainDensity_TSw_[kg/m3]
2460.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2260.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPw_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCF_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BFw_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UFZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSw_[m2]
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnv[m2]
```

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```
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCF_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BFw_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UFZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCF_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BFw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UFZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSw_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPw_
3.0
**
constant
FractureBeta_UCF_
3.0
**
constant
FractureBeta_BFw_
3.0
**
constant
FractureBeta_UFZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSw_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPw_Thickness_1SubArea[m]
34.0
**
constant
UCF_Thickness_1SubArea[m]
67.0
**
constant
BFw_Thickness_1SubArea[m]
0.0
**
constant
UFZ_Thickness_1SubArea[m]
0.0
**
constant
TSw_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPw_Thickness_2SubArea[m]
39.0
**
constant
UCF_Thickness_2SubArea[m]
20.0
**
constant
BFw_Thickness_2SubArea[m]
0.0
**
constant
UFZ_Thickness_2SubArea[m]
0.0
**
constant
```

```
TSw_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPw_Thickness_3SubArea[m]
40.0
**
constant
UCF_Thickness_3SubArea[m]
158.0
**
constant
BFw_Thickness_3SubArea[m]
0.0
**
constant
UFZ_Thickness_3SubArea[m]
0.0
**
constant
TSw_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPw_Thickness_4SubArea[m]
34.0
**
constant
UCF_Thickness_4SubArea[m]
57.0
**
constant
BFw_Thickness_4SubArea[m]
0.0
**
constant
UFZ_Thickness_4SubArea[m]
0.0
**
constant
TSw_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPw_Thickness_5SubArea[m]
38.0
**
constant
UCF_Thickness_5SubArea[m]
158.0
**
constant
BFw_Thickness_5SubArea[m]
32.0
**
constant
UFZ_Thickness_5SubArea[m]
0.0
**
constant
TSw_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPw_Thickness_6SubArea[m]
26.0
**
constant
UCF_Thickness_6SubArea[m]
136.0
**
constant
BFw_Thickness_6SubArea[m]
0.0
**
constant
UFZ_Thickness_6SubArea[m]
0.0
**
constant
TSw_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPw_Thickness_7SubArea[m]
43.0
**
constant
UCF_Thickness_7SubArea[m]
63.0
**
constant
BFw_Thickness_7SubArea[m]
0.0
**
constant
UFZ_Thickness_7SubArea[m]
0.0
**
**
**          ***>>>  SZFT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
constant
```

```
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.0
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FracturePorosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixPorosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
loguniform
ImmobileRD_STFF_Tc
1.0, 30.0
**
constant
ImmobileRD_STFF_Cl
```

```
1.0
**
constant
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
37.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobilePorosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**          ***>>>  DCAGW  <<<***
**
constant
DistanceToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e6, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**          ***>>> FAULTO <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
userdistribution
ThresholdDisplacementforFaultDisruptionOfWP[m]
4
0.1
0.2
0.3
0.4
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNwOrientationOfFaults
0.05
**
uniform
RNtoDetermineFaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[degrees]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[degrees]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**          ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
XLocationInRegionOfInterest[m]
```

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Base Case

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```
548000.0
**
constant
VLocationInRegionOfInterest[m]
4078000.0
**
uniform
EHtoDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**          ***>>> ASHPLUMO  <<<***
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**          ***>>> ASHRMOVO  <<<***
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoistureFractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPluteniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmeriziumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
**
constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**          ***>>>   DCAGS   <<<***
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**
**          ***>>>   CORRELATED PARAMETERS   <<<***
**
correlateinputs
SubAreaWetFraction
AreaAlAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSW_[m2]
-0.623
**
correlateinputs
FowFactor
AreaAlAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
FowFactor
MatrixPermeability_TSW_[m2]
0.13
**
correlateinputs
FowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.881
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.260
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endoffile
```

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Enhanced SolubilityTc

Tpa2.inp.wpd

```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
Code.
 Base case data set Rev 3.2.1   2/22/99
**
**          ***>>>  GLOBAL PARAMETERS   <<<***
**
**
**          ***>>>  Disruptive Scenario flags  <<<***
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**          ***>>> Subarea Size  <<<***
**
**
** Number and Location Of SubAreas[m] Based On
Fig3.4-1 in TSPA95
**subarea
**1
**ZONE T="ONE RECTANGULAR ZONE SUBAREA", F=POINT
**547405.7        4076362.2
**548469.3        4076362.2
**548469.3        4079237.8
**547405.7        4079237.8
**547405.7        4076362.2
subarea
7
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548069.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547472.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078968.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547887.3, 4077238.1
547995.0, 4076338.9
547670.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartAtSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**          ***>>> Nuclides and Chains  <<<***
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides (Pu242, Am242m,
Pu238, Cm243,
**  U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
**  Cs137, Sn126, Sn121m, Ag108m, Pd107, Mo93, Zr93,
Sr90, or Ni63)
**  are added to the basecase set, then corresponding
RDs, KDs,
**  solubilities, gap fractions, and correlations must
be added.
**
iflag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**   number of nuclides, number of chains
20
13
**
**   chain 1
2
Cm246
U238
**   chain 2
3
Cm245
Am241
Np237
**   chain 3
2
Am243
Pu239
**   chain 4
1
Pu240
**   chain 5
4
U234
Th230
Ra226
Pb210
**   chain 6
1
Cs135
**   chain 7
1
I129
**   chain 8
1
Tc99
**   chain 9
1
Ni59
**   chain 10
1
C14
**   chain 11
1
Se79
**   chain 12
1
Nb94
**   chain 13
1
Cl36
**
endofnuclides
**
**
**          ***>>>  Parameter Sampling  <<<***
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
iconstant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**          ***>>>  Simulation Times  <<<***
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
201
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
200
**
constant
RatioOfLastToFirstTimeStepAfterCompliancePeriod
100.0
**
**
**          ***>>>  Output Print Options  <<<***
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**   0 = append all files
**   1 = uzflow.ech and uzflow.rlt only
**   2 = nfenv.ech and nfenv.rlt only
**   3 = ebsfail.ech and ebsfail.rlt only
**   4 = seismo.ech and seismo.rlt only
**   5 = faulto.ech and faulto.rlt only
**   6 = volcano.ech and volcano.rlt only
**   7 = ebsrel.ech and ebsrel.rlt only
**   8 = uzfct.ech and uzfct.rlt only
**   9 = szfct.ech and szfct.rlt only
**   10 = dcagw.ech and dcagw.rlt only
**   11 = ashplumo.ech and ashplumo.rlt only
**   12 = ashrmovo.ech and ashrmovo.rlt only
**   13 = dcags.ech and dcags.rlt only
**   14 = ashplume.cum only
**   15 = failt.cum only
**   16 = nofiiuz.cum only
**   17 = releaset.cum only
**
iconstant
SelectAppendFiles
0
**
**
**          ***>>> UZFLOW  <<<***
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPAndMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**          ***>>> NFENV  <<<***
**
iflag
TabularTemperatureRHFlag(yes=1,no=0)
0
**
iconstant
nsetUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseReflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionOfCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MassDensityofYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
840.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
100001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasket&SPinWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**          ***>>>  EBSFAIL  <<<***
**
constant
OuterWPThickness[m]
0.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
DryOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoeffOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-95.2
**
constant
TempCoeffOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
1040.0,        1240.0
**48.5, 148.5  >>> 625 <<<
**
constant
TempCoeffOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
0.0
**-160.8   >>> 625 <<<
**
constant
TempCoeffOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m^2/yr]
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_1[C/m2/yr]
3.15e5
**
uniform
AA_2_1[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefForLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetForLocCorrOfOuterOverpack
0.45
**
constant
HumidAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.0
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[moL/L]
3.0e-4
**
constant
CritChlorideConcForSecondLayer[moL/L]
1.0
**3.0e-2  >>> 625 <<<
**
uniform
```

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```
ChlorideMultFactor
1.0, 30.0
**
constant
ReferencepH
9.0
**
constant
WPsurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PorosityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**          ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceforSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
0.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.600
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSw2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding "_"
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**          ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
lognormal
FowFactor
0.01, 3.0
**
lognormal
FmultFactor
0.01, 0.2
**
constant
SubAreaWetFraction
1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectiveFractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnsetTemperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate[kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_Am
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.21e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionForNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionForTH230
0.0
**
constant
GapFractionForRA226
0.0
**
constant
GapFractionForPB210
0.0
**
constant
GapFractionForCS135
0.06
**
constant
GapFractionForI129
0.06
**
constant
GapFractionForTC99
0.01
**
constant
GapFractionForNI59
0.0
**
constant
GapFractionForCL36
0.12
**
constant
GapFractionForC14
0.1
**
constant
GapFractionForSE79
0.06
**
constant
GapFractionForNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransFrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
CladC-14InventoryPerKgSF[ci]
4.89e-4
```


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```
**
constant
ZyrOxideAndCrudC-14InvPerKgSF[ci]
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
3.0e-7
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e-5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.9e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**          SFWettedFraction_(failurekind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=ebsfilt,1=bypass-ebsfilt)
0
**
constant
InvertRockPorosity
0.3
**
constant
InvertThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**          ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSw_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_PPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCF_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BFw_Am[m3/kg]
4.1e+00  3.7e+06
**
lognormal
MatrixKD_UFZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSw_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCF_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BFw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UFZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSw_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCF_I[m3/kg]
0.0
**
constant
MatrixKD_BFw_I[m3/kg]
0.0
**
constant
MatrixKD_UFZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSw_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCF_Tc[m3/kg]
0.0
**
constant
MatrixKD_BFw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cl[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cm[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSw_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCF_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BFw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UFZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSw_Pu[m3/kg]
2.3e-02  2.2e+01
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCF_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BFw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UFZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSw_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCF_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BFw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UFZ_Th[m3/kg]
4.5e-05  2.3e+03
**
loguniform
MatrixKD_TSw_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCF_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BFw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UFZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCF_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BFw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UFZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCF_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BFw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UFZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCF_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BFw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UFZ_Ni[m3/kg]
```

```
5.0e-6, 0.50
**
constant
MatrixKD_TSw_C[m3/kg]
0.0
**
constant
MatrixKD_CHnvC[m3/kg]
0.0
**
constant
MatrixKD_CHnzC[m3/kg]
0.0
**
constant
MatrixKD_PPw_C[m3/kg]
0.0
**
constant
MatrixKD_UCF_C[m3/kg]
0.0
**
constant
MatrixKD_BPw_C[m3/kg]
0.0
**
constant
MatrixKD_UPZ_C[m3/kg]
0.0
**
loguniform
MatrixKD_TSw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_CHnvSe[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixKD_CHnzSe[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixKD_PPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UCF_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_BPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UPZ_Se[m3/kg]
3.0e-7, 0.030
**
constant
MatrixKD_TSw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UCF_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_BPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UPZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCF_Am
1.0
**
constant
FractureRD_BPw_Am
1.0
**
constant
FractureRD_UPZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCF_Np
1.0
**
constant
FractureRD_BPw_Np
1.0
**
constant
FractureRD_UPZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCF_I
1.0
**
constant
```

```
FractureRD_BPw_I
1.0
**
constant
FractureRD_UPZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCF_Tc
1.0
**
constant
FractureRD_BPw_Tc
1.0
**
constant
FractureRD_UPZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCF_Cl
1.0
**
constant
FractureRD_BPw_Cl
1.0
**
constant
FractureRD_UPZ_Cl
1.0
**
constant
FractureRD_TSw_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCF_Cm
1.0
**
constant
FractureRD_BPw_Cm
1.0
**
constant
FractureRD_UPZ_Cm
1.0
**
constant
FractureRD_TSw_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCF_U
1.0
**
constant
FractureRD_BPw_U
1.0
**
constant
FractureRD_UPZ_U
1.0
**
constant
FractureRD_TSw_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCF_Pu
1.0
**
constant
FractureRD_BPw_Pu
1.0
**
constant
FractureRD_UPZ_Pu
1.0
**
constant
FractureRD_TSw_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
**
```

```
constant
FractureRD_UCF_Th
1.0
**
constant
FractureRD_BPw_Th
1.0
**
constant
FractureRD_UPZ_Th
1.0
**
constant
FractureRD_TSw_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPw_Ra
1.0
**
constant
FractureRD_UCF_Ra
1.0
**
constant
FractureRD_BPw_Ra
1.0
**
constant
FractureRD_UPZ_Ra
1.0
**
constant
FractureRD_TSw_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPw_Pb
1.0
**
constant
FractureRD_UCF_Pb
1.0
**
constant
FractureRD_BPw_Pb
1.0
**
constant
FractureRD_UPZ_Pb
1.0
**
constant
FractureRD_TSw_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPw_Cs
1.0
**
constant
FractureRD_UCF_Cs
1.0
**
constant
FractureRD_BPw_Cs
1.0
**
constant
FractureRD_UPZ_Cs
1.0
**
constant
FractureRD_TSw_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPw_Ni
1.0
**
constant
FractureRD_UCF_Ni
1.0
**
constant
FractureRD_BPw_Ni
1.0
**
constant
FractureRD_UPZ_Ni
1.0
**
constant
FractureRD_TSw_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPw_C
1.0
**
constant
FractureRD_UCF_C
1.0
**
constant
FractureRD_BPw_C
1.0
**
constant
FractureRD_UPZ_C
1.0
**
constant
FractureRD_TSw_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
1.0
```

```
**
constant
FractureRD_PPw_Se
1.0
**
constant
FractureRD_UCF_Se
1.0
**
constant
FractureRD_BPw_Se
1.0
**
constant
FractureRD_UPZ_Se
1.0
**
constant
FractureRD_TSw_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPw_Nb
1.0
**
constant
FractureRD_UCF_Nb
1.0
**
constant
FractureRD_BPw_Nb
1.0
**
constant
FractureRD_UPZ_Nb
1.0
**
lognormal
MatrixPermeability_TSw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCF_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BPw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UPZ_[m2]
1.8e-18, 2.1e-16
**
constant
MatrixPorosity_TSw_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCF_
0.28
**
constant
MatrixPorosity_BPw_
0.12
**
constant
MatrixPorosity_UPZ_
0.12
**
constant
MatrixBeta_TSW_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPw_
1.5
**
constant
MatrixBeta_UCF_
1.4
**
constant
MatrixBeta_BPw_
1.7
**
constant
MatrixBeta_UPZ_
2.3
**
constant
MatrixGrainDensity_TSw_[kg/m3]
2460.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2260.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPw_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCF_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BPw_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UPZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSw_[m2]
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnv[m2]
```

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```
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCF_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BPw_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UPZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCF_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UPZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSw_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPw_
3.0
**
constant
FractureBeta_UCF_
3.0
**
constant
FractureBeta_BPw_
3.0
**
constant
FractureBeta_UPZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSw_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPw_Thickness_1SubArea[m]
34.0
**
constant
UCF_Thickness_1SubArea[m]
67.0
**
constant
BPw_Thickness_1SubArea[m]
0.0
**
constant
UPZ_Thickness_1SubArea[m]
0.0
**
constant
TSw_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPw_Thickness_2SubArea[m]
39.0
**
constant
UCF_Thickness_2SubArea[m]
20.0
**
constant
BPw_Thickness_2SubArea[m]
0.0
**
constant
UPZ_Thickness_2SubArea[m]
0.0
**
constant
```

```
TSw_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPw_Thickness_3SubArea[m]
40.0
**
constant
UCF_Thickness_3SubArea[m]
158.0
**
constant
BPw_Thickness_3SubArea[m]
0.0
**
constant
UPZ_Thickness_3SubArea[m]
0.0
**
constant
TSw_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPw_Thickness_4SubArea[m]
34.0
**
constant
UCF_Thickness_4SubArea[m]
57.0
**
constant
BPw_Thickness_4SubArea[m]
0.0
**
constant
UPZ_Thickness_4SubArea[m]
0.0
**
constant
TSw_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPw_Thickness_5SubArea[m]
38.0
**
constant
UCF_Thickness_5SubArea[m]
158.0
**
constant
BPw_Thickness_5SubArea[m]
32.0
**
constant
UPZ_Thickness_5SubArea[m]
0.0
**
constant
TSw_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPw_Thickness_6SubArea[m]
26.0
**
constant
UCF_Thickness_6SubArea[m]
136.0
**
constant
BPw_Thickness_6SubArea[m]
0.0
**
constant
UPZ_Thickness_6SubArea[m]
0.0
**
constant
TSw_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPw_Thickness_7SubArea[m]
43.0
**
constant
UCF_Thickness_7SubArea[m]
63.0
**
constant
BPw_Thickness_7SubArea[m]
0.0
**
constant
UPZ_Thickness_7SubArea[m]
0.0
**
**          ***>>>  SZPT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
constant
```

```
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.0
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FracturePorosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixPorosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
loguniform
ImmobileRD_STFF_Tc
1.0, 30.0
**
constant
ImmobileRD_STFF_Cl
```

```
1.0
**
constant
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
37.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobilePorosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**          ***>>>  DCAGW  <<<***
**
constant
DistanceToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e6, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**          ***>>> FAULTO <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
userdistribution
ThresholdDisplacementforFaultDisruptionOfWP[m]
4
0.1
0.2
0.3
0.4
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNWOrientationOfFaults
0.05
**
uniform
RNtoDeterminePaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[degree]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[degree]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**          ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
XLocationInRegionOfInterest[m]
```

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Enhanced SolubilityTc

```
548000.0
**
constant
YLocationInRegionOfInterest[m]
4078000.0
**
uniform
RNtoDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**          ***>>> ASHPLUMO <<<***
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**          ***>>> ASHRMOVO  <<<***
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoistureFractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPluteniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmericiumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
```

Tpa2.inp.wpd

```
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
**
constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**          ***>>>   DCAGS   <<<***
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**
**          ***>>>   CORRELATED PARAMETERS   <<<***
**
correlateinputs
SubAreaWetFraction
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSW_[m2]
-0.623
**
correlateinputs
FowFactor
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
FowFactor
MatrixPermeability_TSW_[m2]
0.13
**
correlateinputs
FowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.801
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.260
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endoffile
```

Michael D. Mobley 06/15/00

Enhanced TcRD

```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
Code.
 Base case data set Rev 3.2.1   2/22/99
**
**          ***>>>  GLOBAL PARAMETERS   <<<***
**
**
**          ***>>>  Disruptive Scenario flags  <<<***
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**          ***>>> Subarea Size  <<<***
**
**
** Number and Location Of SubAreas[m] Based On
Fig3.4-1 in TSPA95
***subarea
**1
**ZONE T="ONE RECTANGULAR ZONE SUBAREA", F=POINT
**547405.7        4076362.2
**548469.3        4076362.2
**548469.3        4079237.8
**547405.7        4079237.8
**547405.7        4076362.2
subarea
2
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548069.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547472.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078968.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547887.3, 4077238.1
547995.0, 4076338.9
547670.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartAtSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**          ***>>> Nuclides and Chains  <<<***
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides (Pu242, Am242m,
Pu238, Cm243,
**  U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
**  Cs137, Sn126, Sn121m, Ag108m, Pd107, Mo93, Zr93,
Sr90, or Ni63)
**  are added to the basecase set, then corresponding
RDs, KDs,
**  solubilities, gap fractions, and correlations must
be added.
**
iflag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**   number of nuclides, number of chains
20
13
**
**   chain 1
2
Cm246
U238
**   chain 2
3
Cm245
Am241
Np237
**   chain 3
2
Am243
Pu239
**   chain 4
1
Pu240
**   chain 5
4
U234
Th230
Ra226
Pb210
**   chain 6
1
Cs135
**   chain 7
1
I129
**   chain 8
1
Tc99
**   chain 9
1
Ni59
**   chain 10
1
C14
**   chain 11
1
Se79
**   chain 12
1
Nb94
**   chain 13
1
Cl36
**
endofnuclides
**
**
**          ***>>>  Parameter Sampling  <<<***
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
constant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**          ***>>>  Simulation Times  <<<***
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
201
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
200
**
constant
RatioOfLastToFirstTimeStepAfterCompliancePeriod
100.0
**
**
**          ***>>>  Output Print Options  <<<***
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**   0 = append all files
**   1 = uzflow.ech and uzflow.rlt only
**   2 = nfenv.ech and nfenv.rlt only
**   3 = ebsfail.ech and ebsfail.rlt only
**   4 = seismo.ech and seismo.rlt only
**   5 = faulto.ech and faulto.rlt only
**   6 = volcano.ech and volcano.rlt only
**   7 = ebsrel.ech and ebsrel.rlt only
**   8 = uzft.ech and uzft.rlt only
**   9 = szft.ech and szft.rlt only
**   10 = dcagw.ech and dcagw.rlt only
**   11 = ashplumo.ech and ashplumo.rlt only
**   12 = ashrmovo.ech and ashrmovo.rlt only
**   13 = dcags.ech and dcags.rlt only
**   14 = ashplume.cum only
**   15 = failt.cum only
**   16 = nefiius.cum only
**   17 = release1.cum only
**
iconstant
SelectAppendFiles
0
**
**
**
**          ***>>> UZFLOW  <<<***
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPAndMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**
**          ***>>> NFENV  <<<***
**
iflag
TabularTemperatureRHFlag(yes=1,no=0)
0
**
iconstant
nsetUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseKeflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionOfCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MassDensityOfYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
840.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
100001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasket&SFinWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**          ***>>>  EBSFAIL  <<<***
**
constant
OuterWPThickness[m]
0.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
DryOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoefOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-95.2
**
constant
TempCoefOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
1040.0,  1240.0
**48.5, 148.5  >>> 625 <<<
**
constant
TempCoefOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
0.0
**-160.8   >>> 625 <<<
**
constant
TempCoefOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_1[C/m2/yr]
3.15e5
**
uniform
AA_2_1[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefForLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetForLocCorrOfOuterOverpack
0.45
**
constant
HumidAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.0
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[moL/L]
3.0e-4
**
constant
CritChlorideConcForSecondLayer[moL/L]
1.0
**3.0e-2  >>> 625 <<<
**
uniform
```

Michael D. Mobley 06/15/00

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```
ChlorideMultFactor
1.0, 30.0
**
constant
ReferencepH
9.0
**
constant
WPsurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PorosityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**            ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceforSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
0.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.600
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSw2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
```

```
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding "_"
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
```

```
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**            ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
lognormal
FowFactor
0.01, 3.0
**
lognormal
FmultFactor
0.01, 0.2
**
constant
SubAreaWetFraction
1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectiveFractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnset Temperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate(kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
```

```
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_Am
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.21e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionForNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionForTH230
0.0
**
constant
GapFractionForRA226
0.0
**
constant
GapFractionForPB210
0.0
**
constant
GapFractionForCS135
0.06
**
constant
GapFractionForI129
0.06
**
constant
GapFractionForTC99
0.01
**
constant
GapFractionForNI59
0.0
**
constant
GapFractionForCL36
0.12
**
constant
GapFractionForC14
0.1
**
constant
GapFractionForSE79
0.06
**
constant
GapFractionForNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransPrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
ClaZC-14InventoryPerKgSF[ci]
4.89e-4
```


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```
**
constant
ZrxOxideAndCrudC-14InvPerKgSF[ci]
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
9.93e1
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e-5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.9e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**            SFWettedFraction_(failurekind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
```

```
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=ebsfilt,1=bypass-ebsfilt)
0
**
constant
InvertRockPorosity
0.3
**
constant
InvertThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**            ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSw_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_PPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCF_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BFw_Am[m3/kg]
4.1e+00  3.7e+06
**
lognormal
MatrixKD_UPZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSw_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
```

```
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCF_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BFw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UPZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSw_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCF_I[m3/kg]
0.0
**
constant
MatrixKD_BFw_I[m3/kg]
0.0
**
constant
MatrixKD_UPZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSw_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCF_Tc[m3/kg]
0.0
**
constant
MatrixKD_BFw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UPZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cl[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UPZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cm[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UPZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSw_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCF_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BFw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UPZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSw_Pu[m3/kg]
2.3e-02  2.2e+01
```

```
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCF_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BFw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UPZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSw_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCF_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BFw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UPZ_Th[m3/kg]
4.5e-05  2.3e+03
**
loguniform
MatrixKD_TSw_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCF_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BFw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UPZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCF_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BFw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UPZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCF_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BFw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UPZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCF_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BFw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UPZ_Ni[m3/kg]
```

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```
5.0e-6, 0.50
**
constant
MatrixKD_TSw_C[m3/kg]
0.0
**
constant
MatrixKD_CHnvC[m3/kg]
0.0
**
constant
MatrixKD_CHnzC[m3/kg]
0.0
**
constant
MatrixKD_PPw_C[m3/kg]
0.0
**
constant
MatrixKD_UCF_C[m3/kg]
0.0
**
constant
MatrixKD_BFw_C[m3/kg]
0.0
**
constant
MatrixKD_UFZ_C[m3/kg]
0.0
**
loguniform
MatrixKD_TSw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_CHnvSe[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixKD_CHnzSe[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixKD_PPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UCF_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_BFw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UFZ_Se[m3/kg]
3.0e-7, 0.030
**
constant
MatrixKD_TSw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UCF_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_BFW_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UFZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCF_Am
1.0
**
constant
FractureRD_BFW_Am
1.0
**
constant
FractureRD_UFZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCF_Np
1.0
**
constant
FractureRD_BFw_Np
1.0
**
constant
FractureRD_UFZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCF_I
1.0
**
constant
```

```
FractureRD_BFw_I
1.0
**
constant
FractureRD_UFZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCF_Tc
1.0
**
constant
FractureRD_BFw_Tc
1.0
**
constant
FractureRD_UFZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCF_Cl
1.0
**
constant
FractureRD_BFw_Cl
1.0
**
constant
FractureRD_UFZ_Cl
1.0
**
constant
FractureRD_TSW_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCF_Cm
1.0
**
constant
FractureRD_BFW_Cm
1.0
**
constant
FractureRD_UFZ_Cm
1.0
**
constant
FractureRD_TSW_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCF_U
1.0
**
constant
FractureRD_BFW_U
1.0
**
constant
FractureRD_UFZ_U
1.0
**
constant
FractureRD_TSW_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCF_Pu
1.0
**
constant
FractureRD_BFW_Pu
1.0
**
constant
FractureRD_UFZ_Pu
1.0
**
constant
FractureRD_TSW_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
**
```

```
constant
FractureRD_UCF_Th
1.0
**
constant
FractureRD_BFW_Th
1.0
**
constant
FractureRD_UFZ_Th
1.0
**
constant
FractureRD_TSW_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPW_Ra
1.0
**
constant
FractureRD_UCF_Ra
1.0
**
constant
FractureRD_BFW_Ra
1.0
**
constant
FractureRD_UFZ_Ra
1.0
**
constant
FractureRD_TSW_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPW_Pb
1.0
**
constant
FractureRD_UCF_Pb
1.0
**
constant
FractureRD_BFW_Pb
1.0
**
constant
FractureRD_UFZ_Pb
1.0
**
constant
FractureRD_TSW_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPW_Cs
1.0
**
constant
FractureRD_UCF_Cs
1.0
**
constant
FractureRD_BFW_Cs
1.0
**
constant
FractureRD_UFZ_Cs
1.0
**
constant
FractureRD_TSW_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPW_Ni
1.0
**
constant
FractureRD_UCF_Ni
1.0
**
constant
FractureRD_BFW_Ni
1.0
**
constant
FractureRD_UFZ_Ni
1.0
**
constant
FractureRD_TSW_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPW_C
1.0
**
constant
FractureRD_UCF_C
1.0
**
constant
FractureRD_BFW_C
1.0
**
constant
FractureRD_UFZ_C
1.0
**
constant
FractureRD_TSW_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
1.0
```



```
**
constant
FractureRD_PPW_Se
1.0
**
constant
FractureRD_UCF_Se
1.0
**
constant
FractureRD_BFW_Se
1.0
**
constant
FractureRD_UFZ_Se
1.0
**
constant
FractureRD_TSW_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPW_Nb
1.0
**
constant
FractureRD_UCF_Nb
1.0
**
constant
FractureRD_BFW_Nb
1.0
**
constant
FractureRD_UFZ_Nb
1.0
**
lognormal
MatrixPermeability_TSW_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCF_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BFW_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UFZ_[m2]
1.8e-18, 2.1e-16
**
constant
MatrixPorosity_TSW_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCF_
0.28
**
constant
MatrixPorosity_BFW_
0.12
**
constant
MatrixPorosity_UFZ_
0.12
**
constant
MatrixBeta_TSW_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPW_
1.5
**
constant
MatrixBeta_UCF_
1.4
**
constant
MatrixBeta_BFW_
1.7
**
constant
MatrixBeta_UFZ_
2.3
**
constant
MatrixGrainDensity_TSW_[kg/m3]
2460.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2260.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPW_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCF_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BFW_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UFZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSW_[m2]
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnv[m2]
```

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```
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCF_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BFw_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UFZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSW_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPW_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCF_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BFW_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UFZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSW_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPW_
3.0
**
constant
FractureBeta_UCF_
3.0
**
constant
FractureBeta_BFW_
3.0
**
constant
FractureBeta_UFZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSW_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPW_Thickness_1SubArea[m]
34.0
**
constant
UCF_Thickness_1SubArea[m]
67.0
**
constant
BFW_Thickness_1SubArea[m]
0.0
**
constant
UFZ_Thickness_1SubArea[m]
0.0
**
constant
TSW_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPW_Thickness_2SubArea[m]
39.0
**
constant
UCF_Thickness_2SubArea[m]
20.0
**
constant
BFW_Thickness_2SubArea[m]
0.0
**
constant
UFZ_Thickness_2SubArea[m]
0.0
**
constant
```

```
TSW_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPW_Thickness_3SubArea[m]
40.0
**
constant
UCF_Thickness_3SubArea[m]
158.0
**
constant
BFW_Thickness_3SubArea[m]
0.0
**
constant
UFZ_Thickness_3SubArea[m]
0.0
**
constant
TSW_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPW_Thickness_4SubArea[m]
34.0
**
constant
UCF_Thickness_4SubArea[m]
57.0
**
constant
BFW_Thickness_4SubArea[m]
0.0
**
constant
UFZ_Thickness_4SubArea[m]
0.0
**
constant
TSW_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPW_Thickness_5SubArea[m]
38.0
**
constant
UCF_Thickness_5SubArea[m]
158.0
**
constant
BFW_Thickness_5SubArea[m]
32.0
**
constant
UFZ_Thickness_5SubArea[m]
0.0
**
constant
TSW_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPW_Thickness_6SubArea[m]
26.0
**
constant
UCF_Thickness_6SubArea[m]
136.0
**
constant
BFW_Thickness_6SubArea[m]
0.0
**
constant
UFZ_Thickness_6SubArea[m]
0.0
**
constant
TSW_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPW_Thickness_7SubArea[m]
43.0
**
constant
UCF_Thickness_7SubArea[m]
63.0
**
constant
BFW_Thickness_7SubArea[m]
0.0
**
constant
UFZ_Thickness_7SubArea[m]
0.0
**
**
**            ***>>>  SZFT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
constant
```

```
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.6e4
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FracturePorosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixPorosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
constant
ImmobileRD_STFF_Tc
2.4e5
**
constant
ImmobileRD_STFF_Cl
```

```
1.0
**
constant
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
37.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobilePorosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**            ***>>>  DCAGW  <<<***
**
constant
DistanceToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e6, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**            ***>>> FAULTO <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
userdistribution
ThresholdDisplacementforFaultDisruptionOfWP[m]
4
0.1
0.2
0.3
0.4
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNWOrientationOfFaults
0.05
**
uniform
EHtoDetermineFaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[deg
rees]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[deg
rees]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**            ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
XLocationInRegionOfInterest[m]
```

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```
548000.0
**
constant
YLocationInRegionOfInterest[m]
4078000.0
**
uniform
RNtoDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**          ***>>> ASHPLUMO <<<***
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**          ***>>> ASHRMOVO <<<***
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoistureFractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPlutoniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmericiumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
```

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```
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
**
constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**          ***>>>   DCAGS   <<<***
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**
**          ***>>>   CORRELATED PARAMETERS   <<<***
**
correlateinputs
SubAreaWetFraction
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSW_[m2]
-0.623
**
correlateinputs
FowFactor
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
FowFactor
MatrixPermeability_TSW_[m2]
0.13
**
correlateinputs
FowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.881
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.260
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endofile
```

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Enhanced SolubilityTc, and TcRD

```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
Code.
 Base case data set Rev 3.2.1   2/22/99
**
**          ***>>>  GLOBAL PARAMETERS   <<<***
**
**
**          ***>>>  Disruptive Scenario flags  <<<***
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**          ***>>> Subarea Size  <<<***
**
** Number and Location Of SubAreas[m] Based On
Fig3.4-1 in TSPA95
**subarea
**1
**ZONE T="ONE RECTANGULAR ZONE SUBAREA", F=POINT
**547405.7        4076362.2
**548469.3        4076362.2
**548469.3        4079237.8
**547405.7        4079237.8
**547405.7        4076362.2
subarea
7
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548069.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547472.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078968.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547887.3, 4077238.1
547995.0, 4076338.9
547670.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartAtSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**          ***>>> Nuclides and Chains  <<<***
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides (Pu242, Am242m,
Pu238, Cm245,
** U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
** Cs137, Sn126, Sn121m, Ag108m, Pd107, No93, Zr93,
Sr90, or Ni63)
**  are added to the basecase set, then corresponding
RDs, KDs,
**  solubilities, gap fractions, and correlations must
be added.
**
iflag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**    number of nuclides, number of chains
20
13
**
**    chain 1
2
Cm246
U238
**    chain 2
3
Cm245
Am241
Np237
**    chain 3
2
Am243
Pu239
**    chain 4
1
Pu240
**    chain 5
4
U233
Th230
Ra226
Pb210
**    chain 6
1
Cs135
**    chain 7
1
I129
**    chain 8
1
Tc99
**    chain 9
1
Ni59
**    chain 10
1
C14
**    chain 11
1
Se79
**    chain 12
1
Nb94
**    chain 13
1
Cl36
**
endofnuclides
**
**
**          ***>>>  Parameter Sampling  <<<***
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
constant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**          ***>>>  Simulation Times  <<<***
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
201
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
200
**
constant
RatioOfLastToFirstTimeStepAftarCompliancePeriod
100.0
**
**
**    ***>>>  Output Print Options  <<<***
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**   0 = append all files
**   1 = uzflow.ech and uzflow.rlt only
**   2 = nfenv.ech and nfenv.rlt only
**   3 = ebsfail.ech and ebsfail.rlt only
**   4 = seismo.ech and seismo.rlt only
**   5 = faulto.ech and faulto.rlt only
**   6 = volcano.ech and volcano.rlt only
**   7 = ebsrel.ech and ebsrel.rlt only
**   8 = uzft.ech and uzft.rlt only
**   9 = szft.ech and szft.rlt only
**  10 = dcagw.ech and dcagw.rlt only
**  11 = ashplumo.ech and ashplumo.rlt only
**  12 = ashrmovo.ech and ashrmovo.rlt only
**  13 = dcagu.ech and dcagu.rlt only
**  14 = ashplume.cum only
**  15 = failt.cum only
**  16 = nefiiuz.cum only
**  17 = rcleaset.cum only
**
iconstant
SelectAppendFiles
0
**
**
**          ***>>> UZFLOW  <<<***
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPAndMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**          ***>>> NFENV  <<<***
**
iflag
TabularTemperatureRHFlag(yes=1,no=0)
0
**
iconstant
nsetUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseReflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionOfCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MassDensityofYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
840.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
100001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasket&SPinWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**          ***>>>  EBSFAIL  <<<***
**
constant
OuterWPThickness[m]
0.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
ErpOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoefOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-35.2
**
constant
TempCoefOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
1040.0,          1240.0
**48.5, 148.5  >>> 625 <<<
**
constant
TempCoefOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
0.0
**-160.8    >>> 625 <<<
**
constant
TempCoefOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_1[C/m2/yr]
3.15e5
**
uniform
AA_2_1[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefForLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetForLocCorrOfOuterOverpack
0.45
**
constant
HumidAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.0
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[moL/L]
3.0e-4
**
constant
CritChloridsConcForSecondLayer[moL/L]
1.0
**3.0e-2  >>> 625 <<<
**
uniform
```

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```
ChlorideMultFactor
1.0, 30.0
**
constant
ReferencepH
9.0
**
constant
WPsurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PorosityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**          ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceforSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
0.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.600
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSw2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding "_"
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**          ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
lognormal
FowFactor
0.01, 3.0
**
lognormal
FmultFactor
0.01, 0.2
**
constant
SubAreaWetFraction
1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectiveFractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnsetTemperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate[kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_Am
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.21e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionForNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionForTH230
0.0
**
constant
GapFractionForRA226
0.0
**
constant
GapFractionForPB210
0.0
**
constant
GapFractionForCS135
0.06
**
constant
GapFractionForI129
0.06
**
constant
GapFractionForTC99
0.01
**
constant
GapFractionForNI59
0.0
**
constant
GapFractionForCL36
0.12
**
constant
GapFractionForC14
0.1
**
constant
GapFractionForSE79
0.06
**
constant
GapFractionForNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransFrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
CladC-14InventoryPerKgSF[ci]
4.89e-4
```


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```
**
constant
ZyrOxideAndCrudC-14InvPerKgSF[ci]
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
3.0e-7
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e-5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.9e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**          SFWettedFraction_(failurekind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=ebsfilt,1=bypass-ebsfilt)
0
**
constant
InvertRockPorosity
0.3
**
constant
InvertThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**          ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSw_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_PPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCF_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BFw_Am[m3/kg]
4.1e+00  3.7e+06
**
lognormal
MatrixKD_UFZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSw_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCF_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BFw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UFZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSw_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCF_I[m3/kg]
0.0
**
constant
MatrixKD_BFw_I[m3/kg]
0.0
**
constant
MatrixKD_UFZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSw_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCF_Tc[m3/kg]
0.0
**
constant
MatrixKD_BFw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cl[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cm[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSw_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCF_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BFw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UFZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSw_Pu[m3/kg]
2.3e-02  2.2e+01
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCF_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BFw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UFZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSw_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCF_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BFw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UFZ_Th[m3/kg]
4.5e-05, 2.3e+03
**
loguniform
MatrixKD_TSw_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCF_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BFw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UFZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCF_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BFw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UFZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCF_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BFw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UFZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCF_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BFw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UFZ_Ni[m3/kg]
```

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```
5.0e-6, 0.50
**
constant
MatrixRD_TSw_C[m3/kg]
0.0
**
constant
MatrixRD_CHnvC[m3/kg]
0.0
**
constant
MatrixRD_CHnzC[m3/kg]
0.0
**
constant
MatrixRD_PPw_C[m3/kg]
0.0
**
constant
MatrixRD_UCP_C[m3/kg]
0.0
**
constant
MatrixRD_BPw_C[m3/kg]
0.0
**
constant
MatrixRD_UPZ_C[m3/kg]
0.0
**
loguniform
MatrixRD_TSw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_CHnvSe[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixRD_CHnzSe[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixRD_PPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_UCP_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_BPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_UPZ_Se[m3/kg]
3.0e-7, 0.030
**
constant
MatrixRD_TSw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixRD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixRD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_UCP_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_BPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_UPZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCP_Am
1.0
**
constant
FractureRD_BPw_Am
1.0
**
constant
FractureRD_UPZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCP_Np
1.0
**
constant
FractureRD_BPw_Np
1.0
**
constant
FractureRD_UPZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCP_I
1.0
**
constant
```

```
FractureRD_BPw_I
1.0
**
constant
FractureRD_UPZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCP_Tc
1.0
**
constant
FractureRD_BPw_Tc
1.0
**
constant
FractureRD_UPZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCP_Cl
1.0
**
constant
FractureRD_BPw_Cl
1.0
**
constant
FractureRD_UPZ_Cl
1.0
**
constant
FractureRD_TSw_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCP_Cm
1.0
**
constant
FractureRD_BPw_Cm
1.0
**
constant
FractureRD_UPZ_Cm
1.0
**
constant
FractureRD_TSw_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCP_U
1.0
**
constant
FractureRD_BPw_U
1.0
**
constant
FractureRD_UPZ_U
1.0
**
constant
FractureRD_TSw_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCP_Pu
1.0
**
constant
FractureRD_BPw_Pu
1.0
**
constant
FractureRD_UPZ_Pu
1.0
**
constant
FractureRD_TSw_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
**
```

```
constant
FractureRD_UCP_Th
1.0
**
constant
FractureRD_BPw_Th
1.0
**
constant
FractureRD_UPZ_Th
1.0
**
constant
FractureRD_TSw_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPw_Ra
1.0
**
constant
FractureRD_UCP_Ra
1.0
**
constant
FractureRD_BPw_Ra
1.0
**
constant
FractureRD_UPZ_Ra
1.0
**
constant
FractureRD_TSw_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPw_Pb
1.0
**
constant
FractureRD_UCP_Pb
1.0
**
constant
FractureRD_BPw_Pb
1.0
**
constant
FractureRD_UPZ_Pb
1.0
**
constant
FractureRD_TSw_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPw_Cs
1.0
**
constant
FractureRD_UCP_Cs
1.0
**
constant
FractureRD_BPw_Cs
1.0
**
constant
FractureRD_UPZ_Cs
1.0
**
constant
FractureRD_TSw_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPw_Ni
1.0
**
constant
FractureRD_UCP_Ni
1.0
**
constant
FractureRD_BPw_Ni
1.0
**
constant
FractureRD_UPZ_Ni
1.0
**
constant
FractureRD_TSw_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPw_C
1.0
**
constant
FractureRD_UCP_C
1.0
**
constant
FractureRD_BPw_C
1.0
**
constant
FractureRD_UPZ_C
1.0
**
constant
FractureRD_TSw_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
1.0
```

```
**
constant
FractureRD_PPw_Se
1.0
**
constant
FractureRD_UCP_Se
1.0
**
constant
FractureRD_BPw_Se
1.0
**
constant
FractureRD_UPZ_Se
1.0
**
constant
FractureRD_TSw_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPw_Nb
1.0
**
constant
FractureRD_UCP_Nb
1.0
**
constant
FractureRD_BPw_Nb
1.0
**
constant
FractureRD_UPZ_Nb
1.0
**
lognormal
MatrixPermeability_TSw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCP_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BPw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UPZ_[m2]
1.8e-18,  2.1e-16
**
constant
MatrixPorosity_TSw_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCP_
0.28
**
constant
MatrixPorosity_BPw_
0.12
**
constant
MatrixPorosity_UPZ_
0.12
**
constant
MatrixBeta_TSw_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPw_
1.5
**
constant
MatrixBeta_UCP_
1.4
**
constant
MatrixBeta_BPw_
1.7
**
constant
MatrixBeta_UPZ_
2.3
**
constant
MatrixGrainDensity_TSw_[kg/m3]
2460.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2260.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPw_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCP_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BPw_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UPZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSw_[m2]
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnv[m2]
```


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```
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCP_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BPw_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UPZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCP_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UPZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSw_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPw_
3.0
**
constant
FractureBeta_UCP_
3.0
**
constant
FractureBeta_BPw_
3.0
**
constant
FractureBeta_UPZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSw_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPw_Thickness_1SubArea[m]
34.0
**
constant
UCP_Thickness_1SubArea[m]
67.0
**
constant
BPw_Thickness_1SubArea[m]
0.0
**
constant
UPZ_Thickness_1SubArea[m]
0.0
**
constant
TSw_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPw_Thickness_2SubArea[m]
39.0
**
constant
UCP_Thickness_2SubArea[m]
20.0
**
constant
BPw_Thickness_2SubArea[m]
0.0
**
constant
UPZ_Thickness_2SubArea[m]
0.0
**
constant
```

```
TSw_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPw_Thickness_3SubArea[m]
40.0
**
constant
UCP_Thickness_3SubArea[m]
158.0
**
constant
BPw_Thickness_3SubArea[m]
0.0
**
constant
UPZ_Thickness_3SubArea[m]
0.0
**
constant
TSw_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPw_Thickness_4SubArea[m]
34.0
**
constant
UCP_Thickness_4SubArea[m]
57.0
**
constant
BPw_Thickness_4SubArea[m]
0.0
**
constant
UPZ_Thickness_4SubArea[m]
0.0
**
constant
TSw_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPw_Thickness_5SubArea[m]
38.0
**
constant
UCP_Thickness_5SubArea[m]
158.0
**
constant
BPw_Thickness_5SubArea[m]
32.0
**
constant
UPZ_Thickness_5SubArea[m]
0.0
**
constant
TSw_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPw_Thickness_6SubArea[m]
26.0
**
constant
UCP_Thickness_6SubArea[m]
136.0
**
constant
BPw_Thickness_6SubArea[m]
0.0
**
constant
UPZ_Thickness_6SubArea[m]
0.0
**
constant
TSw_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPw_Thickness_7SubArea[m]
43.0
**
constant
UCP_Thickness_7SubArea[m]
63.0
**
constant
BPw_Thickness_7SubArea[m]
0.0
**
constant
UPZ_Thickness_7SubArea[m]
0.0
**
**
**          ***>>>  SZFT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
constant
```

```
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.6e4
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FracturePorosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixPorosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
constant
ImmobileRD_STFF_Tc
2.4e5
**
constant
ImmobileRD_STFF_Cl
```

```
1.0
**
constant
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
37.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobilePorosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**          ***>>>   DCAGW   <<<***
**
constant
Distance2ToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e6, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**          ***>>> FAULTO <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
userdistribution
ThresholdDisplacementforFaultDisruptionOfWP[m]
4
0.1
0.2
0.3
0.4
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNWOrientationOfFaults
0.05
**
uniform
RNtoDetermineFaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[degrees]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[degrees]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**          ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
XLocationInRegionOfInterest[m]
```

Enhanced SolubilityTc, and TcRD

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```
548000.0
**
constant
YLocationInRegionOfInterest[m]
4078000.0
**
uniform
RNtoDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**          ***>>> ASHPLUMO <<<***
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**          ***>>> ASHRMOVO <<<***
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoistureFractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPlutoniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmericiumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
**
constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**          ***>>>  DCAGS  <<<***
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**
**          ***>>>  CORRELATED PARAMETERS  <<<***
**
correlateinputs
SubAreaWetFraction
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSW_[m2]
-0.623
**
correlateinputs
FowFactor
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
FowFactor
MatrixPermeability_TSW_[m2]
0.13
**
correlateinputs
FowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.881
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.260
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endofile
```


Enhanced Canister Failure tpa5.inp.wpd

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```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
Code.
 Base case data set Rev 3.2.1   2/22/99
**
**          ***>>>  GLOBAL PARAMETERS   <<<***
**
**
**          ***>>>  Disruptive Scenario flags  <<<***
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**          ***>>> Subarea Size  <<<***
**
**
** Number and Location Of SubAreas[m] Based On
Fig3.4-1 in TSPA95
**subarea
**1
**ZONE T="ONE RECTANGULAR ZONE SUBAREA", F=POINT
**547405.7        4076362.2
**548469.3        4076362.2
**548469.3        4079237.8
**547405.7        4079237.8
**547405.7        4076362.2
subarea
7
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548069.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547472.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078968.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547847.3, 4077238.1
547995.0, 4076338.9
547676.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartAtSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**          ***>>> Nuclides and Chains  <<<***
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides (Pu242, Am242m,
Pu238, Cm243,
**  U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
**  Cs137, Sn126, Sn121m, Ag108m, Pd107, Mo93, Zr93,
Sr90, or Ni63)
**  are added to the basecase set, then corresponding
RDs, KDs,
**  solubilities, gap fractions, and correlations must
be added.
**
ifiag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**      number of nuclides, number of chains
20
13
**
**   chain 1
2
Cm246
U238
**   chain 2
3
Cm245
Am241
Np237
**   chain 3
2
Am243
Pu239
**   chain 4
1
Pu240
**   chain 5
4
U234
Th230
Ra226
Pb210
**   chain 6
1
Cs135
**   chain 7
1
I129
**   chain 8
1
Tc99
**   chain 9
1
Ni59
**   chain 10
1
C14
**   chain 11
1
Se79
**   chain 12
1
Nb94
**   chain 13
1
Cl36
**
endofnuclides
**
**
**          ***>>>  Parameter Sampling  <<<***
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
constant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**          ***>>>  Simulation Times  <<<***
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
201
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
200
**
constant
RatioOfLastToFirstTimeStepAfterCompliancePeriod
100.0
**
**
**     ***>>>  Output Print Options  <<<***
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**   0 = append all files
**   1 = uzflow.ech and uzflow.rlt only
**   2 = nfenv.ech and nfenv.rlt only
**   3 = ebsfail.ech and ebsfail.rlt only
**   4 = seismo.ech and seismo.rlt only
**   5 = faulto.ech and faulto.rlt only
**   6 = volcano.ech and volcano.rlt only
**   7 = ebsrel.ech and ebsrel.rlt only
**   8 = uzft.ech and uzft.rlt only
**   9 = szft.ech and szft.rlt only
**   10 = dcagw.ech and dcagw.rlt only
**   11 = ashpluma.ech and ashpluma.rlt only
**   12 = ashrmovo.ech and ashrmovo.rlt only
**   13 = dcags.ech and dcags.rlt only
**   14 = ashpluma.cum only
**   15 = failt.cum only
**   16 = nefiluz.cum only
**   17 = releaset.cum only
**
iconstant
SelectAppendFiles
0
**
**
**
**          ***>>> UZFLOW  <<<***
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPAndMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**          ***>>> NFENV  <<<***
**
iflag
TabularTemperatureRNFlag(yes=1,no=0)
0
**
iconstant
nsetUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseReflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionOfCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MeanDensityofYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
840.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
100001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasket&SPinWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**          ***>>>  EBSFAIL  <<<***
**
constant
OuterWPThickness[m]
0.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
DryOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoefOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-95.2
**
constant
TempCoefOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
48.5, 148.5  >>> 625 <<<
**
constant
TempCoefOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
-160.8   >>> 625 <<<
**
constant
TempCoefOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole
r]
1.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m/m^2/s
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/s
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_1[C/m2/yr]
3.15e5
**
uniform
AA_2_1[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefforLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetforLocCorrOfOuterOverpack
0.45
**
constant
HumidAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.0
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[moL/L]
3.0e-4
**
constant
CritChlorideConcForSecondLayer[moL/L]
3.0e-2  >>> 625 <<<
**
uniform
ChlorideMultFactor
1.0, 30.0
**
```

```
constant
ReferencepH
9.0
**
constant
WPsurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PorosityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**          ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceforSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
0.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.600
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSw2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding "_"
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**          ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
lognormal
FowFactor
0.01, 3.0
**
lognormal
FmultFactor
0.01, 0.2
**
constant
SubAreaWetFraction
1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectiveFractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnsetTemperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate[kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_Am
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.21e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionForNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionForTH230
0.0
**
constant
GapFractionForRA226
0.0
**
constant
GapFractionForPB210
0.0
**
constant
GapFractionForCS135
0.06
**
constant
GapFractionForI129
0.06
**
constant
GapFractionForTC99
0.01
**
constant
GapFractionForNI59
0.0
**
constant
GapFractionForCL36
0.12
**
constant
GapFractionForC14
0.1
**
constant
GapFractionForSE79
0.06
**
constant
GapFractionForNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransFrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
CladC-14InventoryPerKgSF[ci]
4.89e-4
**
constant
ZyrOxideAndCrudC-14InvPerKgSF[ci]
```



```
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
9.93e1
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e-5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.9e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**          SFWettedFraction_(failurekind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=ebsfilt,1=bypass-ebsfilt)
0
**
constant
InvertRockPorosity
0.3
**
constant
InvertThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**          ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSw_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_PPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCF_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BFw_Am[m3/kg]
4.1e+00  3.7e+06
**
lognormal
MatrixKD_UFZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSw_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCF_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BFw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UFZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSw_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCF_I[m3/kg]
0.0
**
constant
MatrixKD_BFw_I[m3/kg]
0.0
**
constant
MatrixKD_UFZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSw_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCF_Tc[m3/kg]
0.0
**
constant
MatrixKD_BFw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cl[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cm[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSw_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCF_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BFw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UFZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSw_Pu[m3/kg]
2.3e-02  2.2e+01
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCF_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BFw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UFZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSw_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCF_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BFw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UFZ_Th[m3/kg]
4.5e-05  2.3e+03
**
loguniform
MatrixKD_TSw_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCF_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BFw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UFZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCF_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BFw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UFZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCF_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BFw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UFZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCF_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BFw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UFZ_Ni[m3/kg]
5.0e-6, 0.50
**
constant
```

```
MatrixRD_TSw_C[m3/kg]
0.0
**
constant
MatrixRD_CHnvC[m3/kg]
0.0
**
constant
MatrixRD_CHnzC[m3/kg]
0.0
**
constant
MatrixRD_PPw_C[m3/kg]
0.0
**
constant
MatrixRD_UCF_C[m3/kg]
0.0
**
constant
MatrixRD_BFw_C[m3/kg]
0.0
**
constant
MatrixRD_UFZ_C[m3/kg]
0.0
**
loguniform
MatrixRD_TSw_Sm[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_CHnvSm[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixRD_CHnzSm[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixRD_PPw_Sm[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_UCF_Sm[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_BFw_Sm[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixRD_UFZ_Sm[m3/kg]
3.0e-7, 0.030
**
constant
MatrixRD_TSw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixRD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixRD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_UCF_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_BFw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixRD_UFZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCF_Am
1.0
**
constant
FractureRD_BFw_Am
1.0
**
constant
FractureRD_UFZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCF_Np
1.0
**
constant
FractureRD_BFw_Np
1.0
**
constant
FractureRD_UFZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCF_I
1.0
**
constant
FractureRD_BFw_I
1.0
**
constant
FractureRD_UFZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCF_Tc
1.0
**
constant
FractureRD_BFw_Tc
1.0
**
constant
FractureRD_UFZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCF_Cl
1.0
**
constant
FractureRD_BFw_Cl
1.0
**
constant
FractureRD_UFZ_Cl
1.0
**
constant
FractureRD_TSw_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCF_Cm
1.0
**
constant
FractureRD_BFw_Cm
1.0
**
constant
FractureRD_UFZ_Cm
1.0
**
constant
FractureRD_TSw_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCF_U
1.0
**
constant
FractureRD_BFw_U
1.0
**
constant
FractureRD_UFZ_U
1.0
**
constant
FractureRD_TSw_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCF_Pu
1.0
**
constant
FractureRD_BFw_Pu
1.0
**
constant
FractureRD_UFZ_Pu
1.0
**
constant
FractureRD_TSw_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
**
constant
FractureRD_UCF_Th
1.0
**
constant
FractureRD_BFw_Th
1.0
**
constant
FractureRD_UFZ_Th
1.0
**
constant
FractureRD_TSw_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPw_Ra
1.0
**
constant
FractureRD_UCF_Ra
1.0
**
constant
FractureRD_BFw_Ra
1.0
**
constant
FractureRD_UFZ_Ra
1.0
**
constant
FractureRD_TSw_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPw_Pb
1.0
**
constant
FractureRD_UCF_Pb
1.0
**
constant
FractureRD_BFw_Pb
1.0
**
constant
FractureRD_UFZ_Pb
1.0
**
constant
FractureRD_TSw_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPw_Cs
1.0
**
constant
FractureRD_UCF_Cs
1.0
**
constant
FractureRD_BFw_Cs
1.0
**
constant
FractureRD_UFZ_Cs
1.0
**
constant
FractureRD_TSw_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPw_Ni
1.0
**
constant
FractureRD_UCF_Ni
1.0
**
constant
FractureRD_BFw_Ni
1.0
**
constant
FractureRD_UFZ_Ni
1.0
**
constant
FractureRD_TSw_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPw_C
1.0
**
constant
FractureRD_UCF_C
1.0
**
constant
FractureRD_BFw_C
1.0
**
constant
FractureRD_UFZ_C
1.0
**
constant
FractureRD_TSw_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
1.0
**
constant
FractureRD_PPw_Se
```

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```
1.0
**
constant
FractureRD_UCF_Se
1.0
**
constant
FractureRD_BFw_Se
1.0
**
constant
FractureRD_UFZ_Se
1.0
**
constant
FractureRD_TSw_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPw_Nb
1.0
**
constant
FractureRD_UCF_Nb
1.0
**
constant
FractureRD_BFw_Nb
1.0
**
constant
FractureRD_UFZ_Nb
1.0
**
lognormal
MatrixPermeability_TSw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCF_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BFw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UFZ_[m2]
1.8e-18, 2.1e-16
**
constant
MatrixPorosity_TSw_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCF_
0.28
**
constant
MatrixPorosity_BFw_
0.12
**
constant
MatrixPorosity_UFZ_
0.12
**
constant
MatrixBeta_TSw_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPw_
1.5
**
constant
MatrixBeta_UCF_
1.4
**
constant
MatrixBeta_BFw_
1.7
**
constant
MatrixBeta_UFZ_
2.3
**
constant
MatrixGrainDensity_TSw_[kg/m3]
2460.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2260.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPw_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCF_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BFw_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UFZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSw_[m2]
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnv[m2]
8.0e-15, 8.0e-11
**
lognormal
```


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```
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCF_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BFw_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UFZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCF_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BFw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UFZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSw_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPw_
3.0
**
constant
FractureBeta_UCF_
3.0
**
constant
FractureBeta_BFw_
3.0
**
constant
FractureBeta_UFZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSw_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPw_Thickness_1SubArea[m]
34.0
**
constant
UCF_Thickness_1SubArea[m]
67.0
**
constant
BFw_Thickness_1SubArea[m]
0.0
**
constant
UFZ_Thickness_1SubArea[m]
0.0
**
constant
TSw_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPw_Thickness_2SubArea[m]
39.0
**
constant
UCF_Thickness_2SubArea[m]
20.0
**
constant
BFw_Thickness_2SubArea[m]
0.0
**
constant
UFZ_Thickness_2SubArea[m]
0.0
**
constant
TSw_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPw_Thickness_3SubArea[m]
40.0
**
constant
UCF_Thickness_3SubArea[m]
158.0
**
constant
BFw_Thickness_3SubArea[m]
0.0
**
constant
UFZ_Thickness_3SubArea[m]
0.0
**
constant
TSw_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPw_Thickness_4SubArea[m]
34.0
**
constant
UCF_Thickness_4SubArea[m]
57.0
**
constant
BFw_Thickness_4SubArea[m]
0.0
**
constant
UFZ_Thickness_4SubArea[m]
0.0
**
constant
TSw_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPw_Thickness_5SubArea[m]
38.0
**
constant
UCF_Thickness_5SubArea[m]
158.0
**
constant
BFw_Thickness_5SubArea[m]
32.0
**
constant
UFZ_Thickness_5SubArea[m]
0.0
**
constant
TSw_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPw_Thickness_6SubArea[m]
26.0
**
constant
UCF_Thickness_6SubArea[m]
136.0
**
constant
BFw_Thickness_6SubArea[m]
0.0
**
constant
UFZ_Thickness_6SubArea[m]
0.0
**
constant
TSw_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPw_Thickness_7SubArea[m]
43.0
**
constant
UCF_Thickness_7SubArea[m]
63.0
**
constant
BFw_Thickness_7SubArea[m]
0.0
**
constant
UFZ_Thickness_7SubArea[m]
0.0
**
**
**          ***>>>  SZFT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
constant
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.0
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FractureForosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixForosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
loguniform
ImmobileRD_STFF_Tc
1.0, 30.0
**
constant
ImmobileRD_STFF_Cl
1.0
**
constant
```

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```
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
37.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobileForosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**          ***>>>  DCAGW  <<<***
**
constant
DistanceToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e6, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**          ***>>> FAULTO <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNWOrientationOfFaults
0.05
**
uniform
EBtoDetermineFaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[d
rees]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[d
rees]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**          ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
XLocationInRegionOfInterest[m]
548000.0
**
constant
```

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```
YLocationInRegionOfInterest[m]
4078000.0
**
uniform
RNtoDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**          ***>>> ASHPLUMO <<<***
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**          ***>>> ASHRMOVO <<<***
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoisturefractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPlutoniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmericiumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
**
constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**          ***>>>   DCAGS   <<<***
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**          ***>>>   CORRELATED PARAMETERS   <<<***
**
correlateinputs
SubAreaWetFraction
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSw_[m2]
-0.623
**
correlateinputs
FowFactor
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
FowFactor
MatrixPermeability_TSw_[m2]
0.13
**
correlateinputs
FowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.881
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.260
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endofile
```


Enhanced SolTc, TcRD, and Canister Failure tpa6.inp.wpd

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```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
 Code.
 Base case data sst Rev 3.2.1   2/22/99
**
**
**          ***>>>  GLOBAL PARAMETERS   <<<***
**
**
**
**          ***>>>  Disruptive Scenario flags  <<<***
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**          ***>>> Subarea Size  <<<***
**
**
** Number and Location Of Subareas[m] Based On
Fig3.4-1 in TSPA95
**subarea
**1
**ZONE T="ONE RECTANGULAR ZONE SUBAREA", P=POINT
**547405.7        4076362.2
**548469.3        4076362.2
**548469.3        4079237.8
**547405.7        4079237.8
**547405.7        4076362.2
subarea
7
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548069.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547472.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078968.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547887.3, 4077238.1
547995.0, 4076338.9
547670.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartAtSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**          ***>>> Nuclides and Chains  <<<***
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides (Pu242, Am242m,
Pu238, Cm243,
**  U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
**  Cs137, Sn126, Sn121m, Ag108m, Pd107, Mo93, Zr93,
Sr90, or Ni63)
** are added to the basecase set, then corresponding
RDs, KDs,
** solubilities, gap fractions, and correlations must
be added.
**
iflag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**   number of nuclides, number of chains
20
13
**
**   chain 1
2
Cm246
U238
**   chain 2
3
Cm245
Am241
Np237
**   chain 3
2
Am243
Pu239
**   chain 4
1
Pu240
**   chain 5
4
U234
Th230
Ra226
Pb210
**   chain 6
1
Cs135
**   chain 7
1
I129
**   chain 8
1
Tc99
**   chain 9
1
Ni59
**   chain 10
1
C14
**   chain 11
1
Se79
**   chain 12
1
Nb94
**   chain 13
1
Cl36
**
endofnuclides
**
**
**          ***>>>  Parameter Sampling  <<<***
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
constant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**          ***>>>  Simulation Times  <<<***
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
201
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
200
**
constant
RatioOfLastToFirstTimeStepAfterCompliancePeriod
100.0
**
**
**          ***>>>  Output Print Options  <<<***
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**   0 = append all files
**   1 = uzflow.ech and uzflow.rlt only
**   2 = nfenv.ech and nfenv.rlt only
**   3 = ebsfail.ech and ebsfail.rlt only
**   4 = seismo.ech and seismo.rlt only
**   5 = faulto.ech and faulto.rlt only
**   6 = volcano.ech and volcano.rlt only
**   7 = ebsrel.ech and ebsrel.rlt only
**   8 = uzft.ech and uzft.rlt only
**   9 = szft.ech and szft.rlt only
**   10 = dcagw.ech and dcagw.rlt only
**   11 = ashplumo.ech and ashplumo.rlt only
**   12 = ashrmovo.ech and ashrmovo.rlt only
**   13 = dcags.ech and dcags.rlt only
**   14 = ashplume.cum only
**   15 = failt.cum only
**   16 = nefliuz.cum only
**   17 = releaset.cum only
**
iconstant
SelectAppendFiles
0
**
**
**          ***>>> UZFLOW  <<<***
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPAndMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**          ***>>> NFENV  <<<***
**
iflag
TabularTemperatureRHFlag(yes=1,no=0)
0
**
iconstant
nseUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseReflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionOfCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MassDensityofYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
840.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
100001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasket&SFinWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**          ***>>>  EBSFAIL  <<<***
**
constant
OuterWPThickness[m]
0.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
DryOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoefOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-95.2
**
constant
TempCoefOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
48.5, 148.5  >>> 625 <<<
**
constant
TempCoefOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
-160.8   >>> 625 <<<
**
constant
TempCoefOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_I[C/m2/yr]
3.15e5
**
uniform
AA_2_I[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefForLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetForLocCorrOfOuterOverpack
0.45
**
constant
NumdAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.0
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[moL/L]
3.0e-4
**
constant
CritChlorideConcForSecondLayer[moL/L]
3.0e-2  >>> 625 <<<
**
uniform
ChlorideMultFactor
1.0, 30.0
**
```

```
constant
ReferencepH
9.0
**
constant
WPsurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PorosityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**
**              ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceofSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
0.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.600
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSW2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding "_"
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
**
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**              ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
lognormal
FowFactor
0.01, 3.0
**
lognormal
FmultFactor
0.01, 0.2
**
constant
SubAreaWetFraction
1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectiveFractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnsetTemperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate[kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_As
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.23e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionForNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionForTH230
0.0
**
constant
GapFractionForRA226
0.0
**
constant
GapFractionForPB210
0.0
**
constant
GapFractionForCS135
0.06
**
constant
GapFractionForI129
0.06
**
constant
GapFractionForTC99
0.01
**
constant
GapFractionForNI59
0.0
**
constant
GapFractionForCL36
0.12
**
constant
GapFractionForC14
0.1
**
constant
GapFractionForSE79
0.06
**
constant
GapFractionForNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransFrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
CladC-14InventoryPerKgSF[ci]
4.89a-4
**
constant
ZyrOxideAndCrudC-14InvPerKgSF[ci]
```



```
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
3.0e-7
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e-5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.9e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**              SFWettedFraction_(failureKind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=ebsfilt,1=bypass-ebsfilt)
0
constant
InvertRockPorosity
0.3
**
constant
InvertThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**              ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSW_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_PPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCP_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BPw_Am[m3/kg]
4.1e+00  3.7e+06
**
lognormal
MatrixKD_UPZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSW_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCP_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BPw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UPZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSW_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCP_I[m3/kg]
0.0
**
constant
MatrixKD_BPw_I[m3/kg]
0.0
**
constant
MatrixKD_UPZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSW_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCP_Tc[m3/kg]
0.0
**
constant
MatrixKD_BPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UPZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSW_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCP_Cl[m3/kg]
0.0
**
constant
MatrixKD_BPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UPZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSW_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCP_Cm[m3/kg]
0.0
**
constant
MatrixKD_BPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UPZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSW_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCP_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BPw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UPZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSW_Pu[m3/kg]
2.3e-02  2.2e+01
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCP_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BPw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UPZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSW_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCP_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BPw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UPZ_Th[m3/kg]
4.5e-05  2.3e+03
**
loguniform
MatrixKD_TSW_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCP_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UPZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSW_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCP_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UPZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSW_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCP_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UPZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSW_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCP_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UPZ_Ni[m3/kg]
5.0e-6, 0.50
**
constant
```

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```
MatrixKD_TSw_C[m3/kg]
0.0
**
constant
MatrixKD_CHnvC[m3/kg]
0.0
**
constant
MatrixKD_CHnzC[m3/kg]
0.0
**
constant
MatrixKD_PPw_C[m3/kg]
0.0
**
constant
MatrixKD_UCF_C[m3/kg]
0.0
**
constant
MatrixKD_BFw_C[m3/kg]
0.0
**
constant
MatrixKD_UFZ_C[m3/kg]
0.0
**
loguniform
MatrixKD_TSw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_CHnvSe[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixKD_CHnzSe[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixKD_PPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UCF_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_BFw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UFZ_Se[m3/kg]
3.0e-7, 0.030
**
constant
MatrixKD_TSw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UCF_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_BFw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UFZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCF_Am
1.0
**
constant
FractureRD_BFw_Am
1.0
**
constant
FractureRD_UFZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCF_Np
1.0
**
constant
FractureRD_BFw_Np
1.0
**
constant
FractureRD_UFZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCF_I
1.0
**
constant
FractureRD_BFw_I
1.0
**
constant
FractureRD_UFZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCF_Tc
1.0
**
constant
FractureRD_BFw_Tc
1.0
**
constant
FractureRD_UFZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCF_Cl
1.0
**
constant
FractureRD_BFw_Cl
1.0
**
constant
FractureRD_UFZ_Cl
1.0
**
constant
FractureRD_TSw_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCF_Cm
1.0
**
constant
FractureRD_BFw_Cm
1.0
**
constant
FractureRD_UFZ_Cm
1.0
**
constant
FractureRD_TSw_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCF_U
1.0
**
constant
FractureRD_BFw_U
1.0
**
constant
FractureRD_UFZ_U
1.0
**
constant
FractureRD_TSw_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCF_Pu
1.0
**
constant
FractureRD_BFw_Pu
1.0
**
constant
FractureRD_UFZ_Pu
1.0
**
constant
FractureRD_TSw_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
**
constant
FractureRD_UCF_Th
1.0
**
constant
FractureRD_BFw_Th
1.0
**
constant
FractureRD_UFZ_Th
1.0
**
constant
FractureRD_TSw_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPw_Ra
1.0
**
constant
FractureRD_UCF_Ra
1.0
**
constant
FractureRD_BFw_Ra
1.0
**
constant
FractureRD_UFZ_Ra
1.0
**
constant
FractureRD_TSw_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPw_Pb
1.0
**
constant
FractureRD_UCF_Pb
1.0
**
constant
FractureRD_BFw_Pb
1.0
**
constant
FractureRD_UFZ_Pb
1.0
**
constant
FractureRD_TSw_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPw_Cs
1.0
**
constant
FractureRD_UCF_Cs
1.0
**
constant
FractureRD_BFw_Cs
1.0
**
constant
FractureRD_UFZ_Cs
1.0
**
constant
FractureRD_TSw_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPw_Ni
1.0
**
constant
FractureRD_UCF_Ni
1.0
**
constant
FractureRD_BFw_Ni
1.0
**
constant
FractureRD_UFZ_Ni
1.0
**
constant
FractureRD_TSw_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPw_C
1.0
**
constant
FractureRD_UCF_C
1.0
**
constant
FractureRD_BFw_C
1.0
**
constant
FractureRD_UFZ_C
1.0
**
constant
FractureRD_TSw_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
1.0
**
constant
FractureRD_PPw_Se
1.0
**
constant
FractureRD_UCF_Se
1.0
**
constant
FractureRD_BFw_Se
1.0
**
constant
FractureRD_UFZ_Se
1.0
**
constant
FractureRD_TSw_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPw_Nb
1.0
**
constant
FractureRD_UCF_Nb
1.0
**
constant
FractureRD_BFw_Nb
1.0
**
constant
FractureRD_UFZ_Nb
1.0
**
lognormal
MatrixPermeability_TSw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCF_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BFw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UFZ_[m2]
1.8e-18,  2.1e-16
**
constant
MatrixPorosity_TSw_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCF_
0.28
**
constant
MatrixPorosity_BFw_
0.12
**
constant
MatrixPorosity_UFZ_
0.12
**
constant
MatrixBeta_TSw_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPw_
1.5
**
constant
MatrixBeta_UCF_
1.4
**
constant
MatrixBeta_BFw_
1.7
**
constant
MatrixBeta_UFZ_
2.3
**
constant
MatrixGrainDensity_TSw_[kg/m3]
2460.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2260.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPw_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCF_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BFw_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UFZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSw_[m2]
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnv[m2]
8.0e-15, 8.0e-11
**
lognormal
```


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```
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCF_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BFw_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UFZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCF_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BFw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UFZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSw_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPw_
3.0
**
constant
FractureBeta_UCF_
3.0
**
constant
FractureBeta_BFw_
3.0
**
constant
FractureBeta_UFZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSw_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPw_Thickness_1SubArea[m]
34.0
**
constant
UCF_Thickness_1SubArea[m]
67.0
**
constant
BFw_Thickness_1SubArea[m]
0.0
**
constant
UFZ_Thickness_1SubArea[m]
0.0
**
constant
TSw_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPw_Thickness_2SubArea[m]
39.0
**
constant
UCF_Thickness_2SubArea[m]
20.0
**
constant
BFw_Thickness_2SubArea[m]
0.0
**
constant
UFZ_Thickness_2SubArea[m]
0.0
**
constant
TSw_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPw_Thickness_3SubArea[m]
40.0
**
constant
UCF_Thickness_3SubArea[m]
158.0
**
constant
BFw_Thickness_3SubArea[m]
0.0
**
constant
UFZ_Thickness_3SubArea[m]
0.0
**
constant
TSw_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPw_Thickness_4SubArea[m]
34.0
**
constant
UCF_Thickness_4SubArea[m]
57.0
**
constant
BFw_Thickness_4SubArea[m]
0.0
**
constant
UFZ_Thickness_4SubArea[m]
0.0
**
constant
TSw_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPw_Thickness_5SubArea[m]
38.0
**
constant
UCF_Thickness_5SubArea[m]
158.0
**
constant
BFw_Thickness_5SubArea[m]
32.0
**
constant
UFZ_Thickness_5SubArea[m]
0.0
**
constant
TSw_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPw_Thickness_6SubArea[m]
26.0
**
constant
UCF_Thickness_6SubArea[m]
136.0
**
constant
BFw_Thickness_6SubArea[m]
0.0
**
constant
UFZ_Thickness_6SubArea[m]
0.0
**
constant
TSw_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPw_Thickness_7SubArea[m]
43.0
**
constant
UCF_Thickness_7SubArea[m]
63.0
**
constant
BFw_Thickness_7SubArea[m]
0.0
**
constant
UFZ_Thickness_7SubArea[m]
0.0
**
**
**          ***>>>  SZFT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
constant
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.6e4
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FracturePorosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixPorosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
constant
ImmobileRD_STFF_Tc
2.4e5
**
constant
ImmobileRD_STFF_Cl
1.0
**
constant
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
37.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobilePorosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**          ***>>>    DCAGW    <<<***
**
constant
DistanceToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e6, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**          ***>>> FAULTO <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
userdistribution
ThresholdDisplacementforFaultDisruptionOfWP[m]
4
0.1
0.2
0.3
0.4
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNWOrientationOfFaults
0.05
**
uniform
RNtoDetermineFaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[deg
rees]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[deg
rees]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**          ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
XLocationInRegionOfInterest[m]
548000.0
**
constant
```

Enhanced SolTc, TcRD, and Canister Failure

tpa6.inp.wpd

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```
VLocationInRegionOfInterest[m]
4078000.0
**
uniform
RNtoDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**          ***>>> ASHPLUMO <<<***
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**          ***>>> ASHRMOVO  <<<***
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoistureFractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPlutoniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmericiumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
**
constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**          ***>>>   DCAGS   <<<***
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**
**          ***>>>   CORRELATED PARAMETERS   <<<***
**
correlateinputs
SubAreaWetFraction
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSw_[m2]
-0.623
**
correlateinputs
FowFactor
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
FowFactor
MatrixPermeability_TSw_[m2]
0.13
**
correlateinputs
FowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.881
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.260
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endoffile
```


Enhanced Canister and Enhanced Solubility Tc

tpa7.inp.wpd

06/15/00

```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
Code.
 Base case data set Rev 3.2.1   2/22/99
**
**          ***>>>  GLOBAL PARAMETERS   <<<***
**
**
**
**          ***>>>  Disruptive Scenario flags  <<<***
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**          ***>>>> Subarea Size  <<<***
**
**
** Number and Location Of SubAreas[m] Based On
Fig1.4-1 in TSPA95
**subarea
**1
**ZONE T="ONE RECTANGULAR ZONE SUBAREA", F=POINT
**547405.7       4076362.2
**548469.3       4076362.2
**548469.3       4079237.8
**547405.7       4079237.8
**547405.7       4076362.2
subarea
7
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548069.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547472.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078968.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547887.3, 4077238.1
547995.0, 4076338.9
547670.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**          ***>>> Nuclides and Chains  <<<***
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides (Pu242, Am242m,
Pu238, Cm243,
**  U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
**  Cs137, Sn126, Sn121m, Ag108m, Pd107, Mo93, Zr93,
Se90, or Ni63)
**  are added to the basecase set, then corresponding
RDs, KDs,
**  solubilities, gap fractions, and correlations must
be added.
**
iflag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**   number of nuclides, number of chains
20
13
**
**   chain 1
2
Cm246
U238
**   chain 2
3
Cm245
Am241
Np237
**   chain 3
2
Am243
Pu239
**   chain 4
1
Pu240
**   chain 5
4
U234
Th230
Ra226
Pb210
**   chain 6
1
Cs135
**   chain 7
1
I129
**   chain 8
1
Tc99
**   chain 9
1
Ni59
**   chain 10
1
C14
**   chain 11
1
Se79
**   chain 12
1
Nb94
**   chain 13
1
C136
**
endofnuclides
**
**          ***>>>  Parameter Sampling  <<<***
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
constant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**          ***>>>  Simulation Times  <<<***
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
201
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
200
**
constant
RatioOfLastToFirstTimeStepAfterCompliancePeriod
100.0
**
**
**          ***>>>  Output Print Options  <<<***
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**  0 = append all files
**  1 = uzflow.ech and uzflow.rlt only
**  2 = nfenv.ech and nfenv.rlt only
**  3 = ebsfail.ech and ebsfail.rlt only
**  4 = seismo.ech and seismo.rlt only
**  5 = faulto.ech and faulto.rlt only
**  6 = volcano.ech and volcano.rlt only
**  7 = ebsrel.ech and ebsrel.rlt only
**  8 = uzft.ech and uzft.rlt only
**  9 = szft.ech and szft.rlt only
**  10 = dcagw.ech and dcagw.rlt only
**  11 = ashplumo.ech and ashplumo.rlt only
**  12 = ashrmovo.ech and ashrmovo.rlt only
**  13 = dcags.ech and dcags.rlt only
**  14 = ashplume.cum only
**  15 = fault.cum only
**  16 = nefiluz.cum only
**  17 = release1.cum only
**
iconstant
SelectAppendFiles
0
**
**
**
**          ***>>> UZFLOW  <<<***
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPAndMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**
**          ***>>> NFENV  <<<***
**
iflag
TabularTemperatureRHFlag(yes=1,no=0)
0
**
iconstant
nsetUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseReflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionofCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MassDensityofYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
940.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
1000001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasketLSPinWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**
**          ***>>>  EBSFAIL  <<<***
**
constant
OuterWPThickness[m]
6.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
DryOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoefOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-95.2
**
constant
TempCoefOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
48.5, 148.5  >>> 625 <<<
**
constant
TempCoefOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
-160.8   >>> 625 <<<
**
constant
TempCoefOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_1[C/m2/yr]
3.15e5
**
uniform
AA_2_1[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefForLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetForLocCorrOfOuterOverpack
0.45
**
constant
NumidAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.0
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[moL/L]
3.0e-4
**
constant
CritChlorideConcForSecondLayer[moL/L]
3.0e-2  >>> 625 <<<
**
uniform
ChlorideMultFactor
1.0, 30.0
**
```

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```
constant
ReferencepH
9.0
**
constant
WPSurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PorosityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**            ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceforSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
0.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.600
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSw2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding "_"
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**            ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
lognormal
FowFactor
0.01, 3.0
**
lognormal
FmultFactor
0.01, 0.2
**
constant
SubAreaWetFraction
1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectivefractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnsetTemperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate[kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_Am
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.21e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionforNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionforTH230
0.0
**
constant
GapFractionforRA226
0.0
**
constant
GapFractionforPB210
0.0
**
constant
GapFractionforCS135
0.06
**
constant
GapFractionforI129
0.06
**
constant
GapFractionforTC99
0.01
**
constant
GapFractionforNI59
0.0
**
constant
GapFractionforCL36
0.12
**
constant
GapFractionforC14
0.1
**
constant
GapFractionforSE79
0.06
**
constant
GapFractionforNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransFrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
CladC-14InventoryPerKgSF[ci]
4.89e-4
**
constant
ZyrOxideAndCrudC-14InvPerKgSF[ci]
```


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```
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
3.0e-7
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e-5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.0e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**            SFWettedFraction_(failurekind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=ebsfilt,1=bypass-ebsfilt)
0
**
constant
InvertRockPorosity
0.3
**
constant
InvertThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**            ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSw_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_PPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCP_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BFw_Am[m3/kg]
1.4e+00  3.7e+06
**
lognormal
MatrixKD_UFZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSw_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCP_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BFw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UFZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSw_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCP_I[m3/kg]
0.0
**
constant
MatrixKD_BFw_I[m3/kg]
0.0
**
constant
MatrixKD_UFZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSw_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCP_Tc[m3/kg]
0.0
**
constant
MatrixKD_BFw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCP_Cl[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCP_Cm[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSw_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCP_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BFw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UFZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSw_Pu[m3/kg]
2.3e-02  2.2e+01
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCP_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BFw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UFZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSw_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCP_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BFw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UFZ_Th[m3/kg]
4.5e-05  2.3e+03
**
loguniform
MatrixKD_TSw_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCP_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BFw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UFZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCP_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BFw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UFZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCP_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BFw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UFZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCP_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BFw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UFZ_Ni[m3/kg]
5.0e-6, 0.50
**
constant
```

```
MatrixKD_TSw_C[m3/kg]
0.0
**
constant
MatrixKD_CHnvC[m3/kg]
0.0
**
constant
MatrixKD_CHnzC[m3/kg]
0.0
**
constant
MatrixKD_PPw_C[m3/kg]
0.0
**
constant
MatrixKD_UCF_C[m3/kg]
0.0
**
constant
MatrixKD_BFw_C[m3/kg]
0.0
**
constant
MatrixKD_UFZ_C[m3/kg]
0.0
**
loguniform
MatrixKD_TSw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_CHnvSe[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixKD_CHnzSe[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixKD_PPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UCF_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_BFw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UFZ_Se[m3/kg]
3.0e-7, 0.030
**
constant
MatrixKD_TSw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UCF_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_BFw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UFZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCF_Am
1.0
**
constant
FractureRD_BFw_Am
1.0
**
constant
FractureRD_UFZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCF_Np
1.0
**
constant
FractureRD_BFw_Np
1.0
**
constant
FractureRD_UFZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCF_I
1.0
**
constant
FractureRD_BFw_I
1.0
**
constant
FractureRD_UFZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCF_Tc
1.0
**
constant
FractureRD_BFw_Tc
1.0
**
constant
FractureRD_UFZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCF_Cl
1.0
**
constant
FractureRD_BFw_Cl
1.0
**
constant
FractureRD_UFZ_Cl
1.0
**
constant
FractureRD_TSw_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCF_Cm
1.0
**
constant
FractureRD_BFw_Cm
1.0
**
constant
FractureRD_UFZ_Cm
1.0
**
constant
FractureRD_TSw_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCF_U
1.0
**
constant
FractureRD_BFw_U
1.0
**
constant
FractureRD_UFZ_U
1.0
**
constant
FractureRD_TSw_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCF_Pu
1.0
**
constant
FractureRD_BFw_Pu
1.0
**
constant
FractureRD_UFZ_Pu
1.0
**
constant
FractureRD_TSw_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
**
constant
FractureRD_UCF_Th
1.0
**
constant
FractureRD_BFw_Th
1.0
**
constant
FractureRD_UFZ_Th
1.0
**
constant
FractureRD_TSw_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPw_Ra
1.0
**
constant
FractureRD_UCF_Ra
1.0
**
constant
FractureRD_BFw_Ra
1.0
**
constant
FractureRD_UFZ_Ra
1.0
**
constant
FractureRD_TSw_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPw_Pb
1.0
**
constant
FractureRD_UCF_Pb
1.0
**
constant
FractureRD_BFw_Pb
1.0
**
constant
FractureRD_UFZ_Pb
1.0
**
constant
FractureRD_TSw_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPw_Cs
1.0
**
constant
FractureRD_UCF_Cs
1.0
**
constant
FractureRD_BFw_Cs
1.0
**
constant
FractureRD_UFZ_Cs
1.0
**
constant
FractureRD_TSw_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPw_Ni
1.0
**
constant
FractureRD_UCF_Ni
1.0
**
constant
FractureRD_BFw_Ni
1.0
**
constant
FractureRD_UFZ_Ni
1.0
**
constant
FractureRD_TSw_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPw_C
1.0
**
constant
FractureRD_UCF_C
1.0
**
constant
FractureRD_BFw_C
1.0
**
constant
FractureRD_UFZ_C
1.0
**
constant
FractureRD_TSw_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
1.0
**
constant
FractureRD_PPw_Se
1.0
**
constant
FractureRD_UCF_Se
1.0
**
constant
FractureRD_BFw_Se
1.0
**
constant
FractureRD_UFZ_Se
1.0
**
constant
FractureRD_TSw_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPw_Nb
1.0
**
constant
FractureRD_UCF_Nb
1.0
**
constant
FractureRD_BFw_Nb
1.0
**
constant
FractureRD_UFZ_Nb
1.0
**
lognormal
MatrixPermeability_TSw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCF_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BFw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UFZ_[m2]
1.8e-18,  2.1e-16
**
constant
MatrixPorosity_TSw_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCF_
0.28
**
constant
MatrixPorosity_BFw_
0.12
**
constant
MatrixPorosity_UFZ_
0.12
**
constant
MatrixBeta_TSw_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPw_
1.5
**
constant
MatrixBeta_UCF_
1.4
**
constant
MatrixBeta_BFw_
1.7
**
constant
MatrixBeta_UFZ_
2.3
**
constant
MatrixGrainDensity_TSw_[kg/m3]
2460.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2260.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPw_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCF_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BFw_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UFZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSw_[m2]
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnv[m2]
8.0e-15, 8.0e-11
**
lognormal
```



```
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCF_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BFw_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UFZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCF_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BFw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UFZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSw_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPw_
3.0
**
constant
FractureBeta_UCF_
3.0
**
constant
FractureBeta_BFw_
3.0
**
constant
FractureBeta_UFZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSw_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPw_Thickness_1SubArea[m]
34.0
**
constant
UCF_Thickness_1SubArea[m]
67.0
**
constant
BFw_Thickness_1SubArea[m]
0.0
**
constant
UFZ_Thickness_1SubArea[m]
0.0
**
constant
TSw_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPw_Thickness_2SubArea[m]
39.0
**
constant
UCF_Thickness_2SubArea[m]
20.0
**
constant
BFw_Thickness_2SubArea[m]
0.0
**
constant
UFZ_Thickness_2SubArea[m]
0.0
**
constant
TSw_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPw_Thickness_3SubArea[m]
40.0
**
constant
UCF_Thickness_3SubArea[m]
158.0
**
constant
BFw_Thickness_3SubArea[m]
0.0
**
constant
UFZ_Thickness_3SubArea[m]
0.0
**
constant
TSw_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPw_Thickness_4SubArea[m]
34.0
**
constant
UCF_Thickness_4SubArea[m]
57.0
**
constant
BFw_Thickness_4SubArea[m]
0.0
**
constant
UFZ_Thickness_4SubArea[m]
0.0
**
constant
TSw_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPw_Thickness_5SubArea[m]
38.0
**
constant
UCF_Thickness_5SubArea[m]
158.0
**
constant
BFw_Thickness_5SubArea[m]
32.0
**
constant
UFZ_Thickness_5SubArea[m]
0.0
**
constant
TSw_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPw_Thickness_6SubArea[m]
26.0
**
constant
UCF_Thickness_6SubArea[m]
136.0
**
constant
BFw_Thickness_6SubArea[m]
0.0
**
constant
UFZ_Thickness_6SubArea[m]
0.0
**
constant
TSw_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPw_Thickness_7SubArea[m]
43.0
**
constant
UCF_Thickness_7SubArea[m]
63.0
**
constant
BFw_Thickness_7SubArea[m]
0.0
**
constant
UFZ_Thickness_7SubArea[m]
0.0
**
**
**          ***>>>  SZFT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
constant
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.0
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FracturePorosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixPorosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
loguniform
ImmobileRD_STFF_Tc
1.0, 30.0
**
constant
ImmobileRD_STFF_Cl
1.0
**
constant
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
37.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobilePorosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**          ***>>>  DCAGW   <<<***
**
constant
DistanceToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e6, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**          ***>>> FAULTO <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
userdistribution
ThresholdDisplacementforFaultDisruptionOfWP[m]
4
0.1
0.2
0.3
0.4
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNWOrientationOfFaults
0.05
**
uniform
RNtoDetermineFaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[deg
rees]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[deg
rees]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**          ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
XLocationInRegionOfInterest[m]
548000.0
**
constant
```

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```
YLocationInRegionOfInterest[m]
4078000.0
**
uniform
RNtoDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**          ***>>> ASHPLUMO <<<***
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**          ***>>> ASHRMOVO  <<<***
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoistureFractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPlutoniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmericiumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
**
constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**          ***>>>   DCAGS   <<<***
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**
**          ***>>>   CORRELATED PARAMETERS   <<<***
**
correlateinputs
SubAreaWetFraction
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSw_[m2]
-0.623
**
correlateinputs
FowFactor
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
FowFactor
MatrixPermeability_TSw_[m2]
0.13
**
correlateinputs
FowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.881
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.260
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endoffile
```


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```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
Code.
 Base case data set Rev 3.2.1   2/22/99
**
**          ***>>>  GLOBAL PARAMETERS   <<<***
**
**
**          ***>>>  Disruptive Scenario flags  <<<***
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**          ***>>> Subarea Size  <<<***
**
**
** Number and Location Of SubAreas[m] Based On
Fig3.4-1 in TSPA95
**subarea
**1
**ZONE T="ONE RECTANGULAR ZONE SUBAREA", F=POINT
**547405.7        4076362.2
**548469.3        4076362.2
**548469.3        4079237.8
**547405.7        4079237.8
**547405.7        4076362.2
subarea
7
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548069.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547472.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078968.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547887.3, 4077238.1
547995.0, 4076338.9
547670.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartAtSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**          ***>>> Nuclides and Chains  <<<***
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides (Pu242, Am242m,
Pu238, Cm243,
**  U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
**  Cs137, Sn126, Sn121m, Ag108m, Pd107, Mo93, Zr93,
Sr90, or Ni63)
**  are added to the basecase set, then corresponding
RDs, KDs,
**  solubilities, gap fractions, and correlations must
be added.
**
iflag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**    number of nuclides, number of chains
20
13
**
**    chain 1
2
Cm246
U238
**    chain 2
3
Cm245
Am241
Np237
**    chain 3
2
Am243
Pu239
**    chain 4
1
Pu240
**    chain 5
4
U234
Th230
Ra226
Pb210
**    chain 6
1
Cs135
**    chain 7
1
I129
**    chain 8
1
Tc99
**    chain 9
1
Ni59
**    chain 10
1
C14
**    chain 11
1
Se79
**    chain 12
1
Nb94
**    chain 13
1
Cl36
**
endofnuclides
**
**
**          ***>>>  Parameter Sampling  <<<***
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
constant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**          ***>>>  Simulation Times  <<<***
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
201
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
200
**
constant
RatioOfLastToFirstTimeStepAfterCompliancePeriod
100.0
**
**
**     ***>>>  Output Print Options  <<<***
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**    0 = append all files
**    1 = uzflow.ech and uzflow.rlt only
**    2 = nfenv.ech and nfenv.rlt only
**    3 = ebsfail.ech and ebsfail.rlt only
**    4 = seismo.ech and seismo.rlt only
**    5 = faulto.ech and faulto.rlt only
**    6 = volcano.ech and volcano.rlt only
**    7 = ebsrel.ech and ebsrel.rlt only
**    8 = uzft.ech and uzft.rlt only
**    9 = szft.ech and szft.rlt only
**   10 = dcagw.ech and dcagw.rlt only
**   11 = ashplumo.ech and ashplumo.rlt only
**   12 = ashrmovo.ech and ashrmovo.rlt only
**   13 = dcags.ech and dcags.rlt only
**   14 = ashplume.cum only
**   15 = failt.cum only
**   16 = nefiiuz.cum only
**   17 = releaset.cum only
**
iconstant
SelectAppendFiles
0
**
**
**          ***>>> UZFLOW  <<<***
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPAndMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**          ***>>> NFENV  <<<***
**
iflag
TabularTemperatureRHFlag(yes=1,no=0)
0
**
iconstant
nsetUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseReflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionOfCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MassDensityofYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
840.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
100001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasket&SFinWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**          ***>>>  EBSFAIL  <<<***
**
constant
OuterWPThickness[m]
0.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
DryOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoefOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-95.2
**
constant
TempCoefOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
48.5, 148.5   >>> 625 <<<
**
constant
TempCoefOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
-160.8    >>> 625 <<<
**
constant
TempCoefOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_1[C/m2/yr]
3.15e5
**
uniform
AA_2_1[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefForLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetForLocCorrOfOuterOverpack
0.45
**
constant
HumidAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.0
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[moL/L]
3.0e-4
**
constant
CritChlorideConcForSecondLayer[moL/L]
3.0e-2  >>> 625 <<<
**
uniform
ChlorideMultFactor
1.0, 30.0
**
```

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```
constant
ReferencepH
9.0
**
constant
WPsurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PorosityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**          ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceforSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
0.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.600
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSw2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding "_"
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**          ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
lognormal
FowFactor
0.01, 3.0
**
lognormal
FmultFactor
0.01, 0.2
**
constant
SubAreaWetFraction
1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectiveFractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnsetTemperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate[kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_Am
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.21e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionForNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionForTH230
0.0
**
constant
GapFractionForRA226
0.0
**
constant
GapFractionForPB210
0.0
**
constant
GapFractionForCS135
0.06
**
constant
GapFractionForI129
0.06
**
constant
GapFractionForTC99
0.01
**
constant
GapFractionForNI59
0.0
**
constant
GapFractionForCL36
0.12
**
constant
GapFractionForC14
0.1
**
constant
GapFractionForSE79
0.06
**
constant
GapFractionForNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransFrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
CladC-14InventoryPerKgSF[ci]
4.89e-4
**
constant
ZyrOxideAndCrudC-14InvPerKgSF[ci]
```


Michael J. Mabry 06/15/00

```
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
9.93e1
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e-5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.9e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**          SFWettedFraction_(failurekind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=ebsfilt,1=bypass-ebsfilt)
0
**
constant
InvertRockPorosity
0.3
**
constant
InvertThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**          ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSw_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_PPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCF_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BFw_Am[m3/kg]
4.1e+00  3.7e+06
**
lognormal
MatrixKD_UFZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSw_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCF_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BFw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UFZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSw_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCF_I[m3/kg]
0.0
**
constant
MatrixKD_BFw_I[m3/kg]
0.0
**
constant
MatrixKD_UFZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSw_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCF_Tc[m3/kg]
0.0
**
constant
MatrixKD_BFw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cl[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cm[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSw_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCF_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BFw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UFZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSw_Pu[m3/kg]
2.3e-02  2.2e+01
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCF_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BFw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UFZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSw_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCF_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BFw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UFZ_Th[m3/kg]
4.5e-05  2.3e+03
**
loguniform
MatrixKD_TSw_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCF_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BFw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UFZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCF_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BFw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UFZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCF_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BFw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UFZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCF_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BFw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UFZ_Ni[m3/kg]
5.0e-6, 0.50
**
constant
```

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```
MatrixKD_TSw_C[m3/kg]
0.0
**
constant
MatrixKD_CHnvC[m3/kg]
0.0
**
constant
MatrixKD_CHnzC[m3/kg]
0.0
**
constant
MatrixKD_PPw_C[m3/kg]
0.0
**
constant
MatrixKD_UCF_C[m3/kg]
0.0
**
constant
MatrixKD_BFw_C[m3/kg]
0.0
**
constant
MatrixKD_UFZ_C[m3/kg]
0.0
**
loguniform
MatrixKD_TSw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_CHnvSe[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixKD_CHnzSe[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixKD_PPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UCF_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_BFw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UFZ_Se[m3/kg]
3.0e-7, 0.030
**
constant
MatrixKD_TSw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UCF_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_BFw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UFZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCF_Am
1.0
**
constant
FractureRD_BFw_Am
1.0
**
constant
FractureRD_UFZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCF_Np
1.0
**
constant
FractureRD_BFw_Np
1.0
**
constant
FractureRD_UFZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCF_I
1.0
**
constant
FractureRD_BFw_I
1.0
**
constant
FractureRD_UFZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCF_Tc
1.0
**
constant
FractureRD_BFw_Tc
1.0
**
constant
FractureRD_UFZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCF_Cl
1.0
**
constant
FractureRD_BFw_Cl
1.0
**
constant
FractureRD_UFZ_Cl
1.0
**
constant
FractureRD_TSw_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCF_Cm
1.0
**
constant
FractureRD_BFw_Cm
1.0
**
constant
FractureRD_UFZ_Cm
1.0
**
constant
FractureRD_TSw_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCF_U
1.0
**
constant
FractureRD_BFw_U
1.0
**
constant
FractureRD_UFZ_U
1.0
**
constant
FractureRD_TSw_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCF_Pu
1.0
**
constant
FractureRD_BFw_Pu
1.0
**
constant
FractureRD_UFZ_Pu
1.0
**
constant
FractureRD_TSw_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
**
constant
FractureRD_UCF_Th
1.0
**
constant
FractureRD_BFw_Th
1.0
**
constant
FractureRD_UFZ_Th
1.0
**
constant
FractureRD_TSw_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPw_Ra
1.0
**
constant
FractureRD_UCF_Ra
1.0
**
constant
FractureRD_BFw_Ra
1.0
**
constant
FractureRD_UFZ_Ra
1.0
**
constant
FractureRD_TSw_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPw_Pb
1.0
**
constant
FractureRD_UCF_Pb
1.0
**
constant
FractureRD_BFw_Pb
1.0
**
constant
FractureRD_UFZ_Pb
1.0
**
constant
FractureRD_TSw_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPw_Cs
1.0
**
constant
FractureRD_UCF_Cs
1.0
**
constant
FractureRD_BFw_Cs
1.0
**
constant
FractureRD_UFZ_Cs
1.0
**
constant
FractureRD_TSw_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPw_Ni
1.0
**
constant
FractureRD_UCF_Ni
1.0
**
constant
FractureRD_BFw_Ni
1.0
**
constant
FractureRD_UFZ_Ni
1.0
**
constant
FractureRD_TSw_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPw_C
1.0
**
constant
FractureRD_UCF_C
1.0
**
constant
FractureRD_BFw_C
1.0
**
constant
FractureRD_UFZ_C
1.0
**
constant
FractureRD_TSw_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
1.0
**
constant
FractureRD_PPw_Se
1.0
**
constant
FractureRD_UCF_Se
1.0
**
constant
FractureRD_BFw_Se
1.0
**
constant
FractureRD_UFZ_Se
1.0
**
constant
FractureRD_TSw_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPw_Nb
1.0
**
constant
FractureRD_UCF_Nb
1.0
**
constant
FractureRD_BFw_Nb
1.0
**
constant
FractureRD_UFZ_Nb
1.0
**
lognormal
MatrixPermeability_TSw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCF_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BFw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UFZ_[m2]
1.8e-18,  2.1e-16
**
constant
MatrixPorosity_TSw_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCF_
0.28
**
constant
MatrixPorosity_BFw_
0.12
**
constant
MatrixPorosity_UFZ_
0.12
**
constant
MatrixBeta_TSw_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPw_
1.5
**
constant
MatrixBeta_UCF_
1.4
**
constant
MatrixBeta_BFw_
1.7
**
constant
MatrixBeta_UFZ_
2.3
**
constant
MatrixGrainDensity_TSw_[kg/m3]
2460.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2260.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPw_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCF_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BFw_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UFZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSw_[m2]
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnv[m2]
8.0e-15, 8.0e-11
**
lognormal
```


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```
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCF_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BFw_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UFZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCF_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BFw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UFZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSw_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPw_
3.0
**
constant
FractureBeta_UCF_
3.0
**
constant
FractureBeta_BFw_
3.0
**
constant
FractureBeta_UFZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSw_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPw_Thickness_1SubArea[m]
34.0
**
constant
UCF_Thickness_1SubArea[m]
67.0
**
constant
BFw_Thickness_1SubArea[m]
0.0
**
constant
UFZ_Thickness_1SubArea[m]
0.0
**
constant
TSw_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPw_Thickness_2SubArea[m]
39.0
**
constant
UCF_Thickness_2SubArea[m]
20.0
**
constant
BFw_Thickness_2SubArea[m]
0.0
**
constant
UFZ_Thickness_2SubArea[m]
0.0
**
constant
TSw_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPw_Thickness_3SubArea[m]
40.0
**
constant
UCF_Thickness_3SubArea[m]
158.0
**
constant
BFw_Thickness_3SubArea[m]
0.0
**
constant
UFZ_Thickness_3SubArea[m]
0.0
**
constant
TSw_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPw_Thickness_4SubArea[m]
34.0
**
constant
UCF_Thickness_4SubArea[m]
57.0
**
constant
BFw_Thickness_4SubArea[m]
0.0
**
constant
UFZ_Thickness_4SubArea[m]
0.0
**
constant
TSw_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPw_Thickness_5SubArea[m]
38.0
**
constant
UCF_Thickness_5SubArea[m]
158.0
**
constant
BFw_Thickness_5SubArea[m]
32.0
**
constant
UFZ_Thickness_5SubArea[m]
0.0
**
constant
TSw_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPw_Thickness_6SubArea[m]
26.0
**
constant
UCF_Thickness_6SubArea[m]
136.0
**
constant
BFw_Thickness_6SubArea[m]
0.0
**
constant
UFZ_Thickness_6SubArea[m]
0.0
**
constant
TSw_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPw_Thickness_7SubArea[m]
43.0
**
constant
UCF_Thickness_7SubArea[m]
63.0
**
constant
BFw_Thickness_7SubArea[m]
0.0
**
constant
UFZ_Thickness_7SubArea[m]
0.0
**
**
**          ***>>>  SZFT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
constant
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.6e4
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FracturePorosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixPorosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
constant
ImmobileRD_STFF_Tc
2.4e5
**
constant
ImmobileRD_STFF_Cl
1.0
**
constant
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
37.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobilePorosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**          ***>>>   DCAGW   <<<***
**
constant
DistanceToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e6, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**          ***>>> FAULTO <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
userdistribution
ThresholdDisplacementforFaultDisruptionOfWP[m]
4
0.1
0.2
0.3
0.4
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNWOrientationOfFaults
0.05
**
uniform
RNtoDetermineFaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[deg
rees]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[deg
rees]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**          ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
XLocationInRegionOfInterest[m]
548000.0
**
constant
```

Enhanced Canister and TcRD

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```
YLocationInRegionOfInterest[m]
4078000.0
**
uniform
RNtoDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**          ***>>> ASHPLUMO  <<<***
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**          ***>>> ASHRMOVO  <<<***
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoistureFractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPlutoniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmericiumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
**
constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**          ***>>>   DCAGS   <<<***
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**
**          ***>>>   CORRELATED PARAMETERS   <<<***
**
correlateinputs
SubAreaWetFraction
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSW_[m2]
-0.623
**
correlateinputs
FowFactor
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
FowFactor
MatrixPermeability_TSW_[m2]
0.13
**
correlateinputs
FowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.881
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.269
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endoffile
```


Enhanced Alluvium

tpa9.inp.wpd

06/15/00

```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
Code.
 Base case data set Rev 3.2.1   2/22/99
**
**          ***>>>  GLOBAL PARAMETERS   <<<***
**
**
**          ***>>>  Disruptive Scenario flags  <<<***
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**          ***>>> Subarea Size  <<<***
**
**
** Number and Location Of SubAreas[m] Based On
Fig3.4-1 in TSPA95
**subarea
**1
**ZONE T="Subarea 1",I=5,F=POINT
**        547405.7        4076362.2
**        548469.3        4076362.2
**        548469.3        4079237.8
**        547405.7        4079237.8
**        547405.7        4076362.2
subarea
2
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548968.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547472.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078968.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547887.3, 4077238.1
547995.0, 4076338.9
547670.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartAtSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**
**          ***>>> Nuclides and Chains  <<<***
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides (Pu242, Am242m,
Pu238, Cm243,
**  U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
**  Cs137, Sn126, Sn121m, Ag108m, Pd107, Mo93, Zr93,
Se90, or Ni63)
**  are added to the basecase set, then corresponding
RDs, KDs,
**  solubilities, gap fractions, and correlations must
be added.
**
iflag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**   number of nuclides, number of chains
20
13
**
**   chain 1
2
Cm246
U238
**   chain 2
3
Cm245
Am241
Np237
**   chain 3
2
Am243
Pu239
**   chain 4
1
Pu240
**   chain 5
4
U234
Th230
Ra226
Pb210
**   chain 6
1
Cs135
**   chain 7
1
I129
**   chain 8
1
Tc99
**   chain 9
1
Ni59
**   chain 10
1
C14
**   chain 11
1
Se79
**   chain 12
1
Nb94
**   chain 13
1
C136
**
endofnuclides
**
**          ***>>>  Parameter Sampling  <<<***
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
constant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**          ***>>>  Simulation Times  <<<***
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
140
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
61
**
constant
RatioOfLastToFirstTimeStepAfterCompliancePeriod
100.0
**
**
**   ***>>>  Output Print Options  <<<***
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**   0 = append all files
**   1 = uzflow.ech and uzflow.rlt only
**   2 = nfenv.ech and nfenv.rlt only
**   3 = obsfail.ech and obsfail.rlt only
**   4 = seismo.ech and seismo.rlt only
**   5 = faulto.ech and faulto.rlt only
**   6 = volcano.ech and volcano.rlt only
**   7 = ebsrel.ech and ebsrel.rlt only
**   8 = uzft.ech and uzft.rlt only
**   9 = szft.ech and szft.rlt only
**   10 = dcagw.ech and dcagw.rlt only
**   11 = ashplumo.ech and ashplumo.rlt only
**   12 = ashrmovo.ech and ashrmovo.rlt only
**   13 = dcags.ech and dcags.rlt only
**   14 = ashplume.cum only
**   15 = failt.cum only
**   16 = nafiiuz.cum only
**   17 = releaset.cum only
iconstant
SelectAppendFiles
0
**
**
**
**          ***>>> UZFLOW  <<<***
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPAndMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**          ***>>> NFENV  <<<***
**
iflag
TabularTemperatureRHFlag(yes=1,no=0)
0
**
iconstant
nsetUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseReflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionOfCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MeanDensityofYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
840.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
100001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasketL&SFinWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**          ***>>>  EBSFAIL  <<<***
**
constant
OuterWPThickness[m]
0.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
DryOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoefOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-95.2
**
constant
TempCoefOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
1040.0,   1240.0
**48.5, 149.5  >>> 625 <<<
**
constant
TempCoefOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
0.0
**-160.8   >>> 625 <<<
**
constant
TempCoefOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_1[C/m2/yr]
3.15e5
**
uniform
AA_2_1[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefForLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetForLocCorrOfOuterOverpack
0.45
**
constant
HumidAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.0
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[mol/L]
3.0e-4
**
constant
CritChlorideConcForSecondLayer[mol/L]
1.0
**3.0e-2  >>> 625 <<<
**
uniform
```

```
ChlorideMultFactor
1.0, 30.0
**
constant
ReferencepH
9.0
**
constant
WPsurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PorosityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**          ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceforSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
0.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.600
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSw2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding "_"
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**          ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
**
lognormal
FowFactor
0.01, 3.0
**
lognormal
FmultFactor
0.01, 0.2
**
uniform
SubAreaWetFraction
0.0, 1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectiveFractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnsetTemperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate[kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_Am
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.21e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionForNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionForTH230
0.0
**
constant
GapFractionForRA226
0.0
**
constant
GapFractionForPB210
0.0
**
constant
GapFractionForCS135
0.06
**
constant
GapFractionForI129
0.06
**
constant
GapFractionForTC99
0.01
**
constant
GapFractionForNI59
0.0
**
constant
GapFractionForCL36
0.12
**
constant
GapFractionForC14
0.1
**
constant
GapFractionForSE79
0.06
**
constant
GapFractionForNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransFrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
CladC-14InventoryPerKgSF[ci]
```



```
4.89e-4
**
constant
ZyrOxideAndCrudC-14InvPerKgSF[ci]
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
9.93e1
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e-5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.9e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**              SFWettedFraction_(failurekind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=ebsfilt,1=bypass-ebsfilt)
0
**
constant
InvertRockPorosity
0.3
**
constant
InvertThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**          ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSw_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_PPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCF_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BFw_Am[m3/kg]
4.1e+00  3.7e+06
**
lognormal
MatrixKD_UFZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSw_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCF_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BFw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UFZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSw_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCF_I[m3/kg]
0.0
**
constant
MatrixKD_BFw_I[m3/kg]
0.0
**
constant
MatrixKD_UFZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSw_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCF_Tc[m3/kg]
0.0
**
constant
MatrixKD_BFw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cl[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCF_Cm[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSw_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCF_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BFw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UFZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSw_Pu[m3/kg]
2.3e-02  2.2e+01
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCF_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BFw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UFZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSw_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCF_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BFw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UFZ_Th[m3/kg]
4.5e-05  2.3e+03
**
loguniform
MatrixKD_TSw_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCF_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BFw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UFZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCF_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BFw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UFZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCF_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BFw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UFZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCF_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BFw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
```

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```
MatrixKD_UPZ_Ni[m3/kg]
5.0e-6, 0.50
**
constant
MatrixKD_TSw_C[m3/kg]
0.0
**
constant
MatrixKD_CHnvC[m3/kg]
0.0
**
constant
MatrixKD_CHnzC[m3/kg]
0.0
**
constant
MatrixKD_PPw_C[m3/kg]
0.0
**
constant
MatrixKD_UCF_C[m3/kg]
0.0
**
constant
MatrixKD_BPw_C[m3/kg]
0.0
**
constant
MatrixKD_UPZ_C[m3/kg]
0.0
**
loguniform
MatrixKD_TSw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_CHnvSe[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixKD_CHnzSe[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixKD_PPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UCF_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_BPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UPZ_Se[m3/kg]
3.0e-7, 0.030
**
constant
MatrixKD_TSW_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UCF_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_BPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UPZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCF_Am
1.0
**
constant
FractureRD_BPw_Am
1.0
**
constant
FractureRD_UPZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCF_Np
1.0
**
constant
FractureRD_BPw_Np
1.0
**
constant
FractureRD_UPZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCF_I
1.0
**
constant
FractureRD_BPw_I
1.0
**
constant
FractureRD_UPZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCF_Tc
1.0
**
constant
FractureRD_BPw_Tc
1.0
**
constant
FractureRD_UPZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCF_Cl
1.0
**
constant
FractureRD_BPw_Cl
1.0
**
constant
FractureRD_UPZ_Cl
1.0
**
constant
FractureRD_TSw_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCF_Cm
1.0
**
constant
FractureRD_BPw_Cm
1.0
**
constant
FractureRD_UPZ_Cm
1.0
**
constant
FractureRD_TSW_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCF_U
1.0
**
constant
FractureRD_BPW_U
1.0
**
constant
FractureRD_UPZ_U
1.0
**
constant
FractureRD_TSw_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCF_Pu
1.0
**
constant
FractureRD_BPW_Pu
1.0
**
constant
FractureRD_UPZ_Pu
1.0
**
constant
FractureRD_TSW_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
**
constant
FractureRD_UCF_Th
1.0
**
constant
FractureRD_BPw_Th
1.0
**
constant
FractureRD_UPZ_Th
1.0
**
constant
FractureRD_TSw_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPw_Ra
1.0
**
constant
FractureRD_UCF_Ra
1.0
**
constant
FractureRD_BPw_Ra
1.0
**
constant
FractureRD_UPZ_Ra
1.0
**
constant
FractureRD_TSw_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPw_Pb
1.0
**
constant
FractureRD_UCP_Pb
1.0
**
constant
FractureRD_BPW_Pb
1.0
**
constant
FractureRD_UPZ_Pb
1.0
**
constant
FractureRD_TSW_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPw_Cs
1.0
**
constant
FractureRD_UCF_Cs
1.0
**
constant
FractureRD_BPw_Cs
1.0
**
constant
FractureRD_UPZ_Cs
1.0
**
constant
FractureRD_TSW_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPw_Ni
1.0
**
constant
FractureRD_UCF_Ni
1.0
**
constant
FractureRD_BPw_Ni
1.0
**
constant
FractureRD_UPZ_Ni
1.0
**
constant
FractureRD_TSW_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPw_C
1.0
**
constant
FractureRD_UCF_C
1.0
**
constant
FractureRD_BPW_C
1.0
**
constant
FractureRD_UPZ_C
1.0
**
constant
FractureRD_TSW_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
1.0
**
constant
FractureRD_PPw_Se
1.0
**
constant
FractureRD_UCF_Se
1.0
**
constant
FractureRD_BPw_Se
1.0
**
constant
FractureRD_UPZ_Se
1.0
**
constant
FractureRD_TSW_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPw_Nb
1.0
**
constant
FractureRD_UCF_Nb
1.0
**
constant
FractureRD_BPW_Nb
1.0
**
constant
FractureRD_UPZ_Nb
1.0
**
lognormal
MatrixPermeability_TSW_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCF_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BPW_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UPZ_[m2]
1.8e-18, 2.1e-16
**
constant
MatrixPorosity_TSW_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCF_
0.28
**
constant
MatrixPorosity_BPW_
0.12
**
constant
MatrixPordsity_UPZ_
0.12
**
constant
MatrixBeta_TSW_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPw_
1.5
**
constant
MatrixBeta_UCF_
1.4
**
constant
MatrixBeta_BPw_
1.7
**
constant
MatrixBeta_UPZ_
2.3
**
constant
MatrixGrainDensity_TSW_[kg/m3]
2400.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2200.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPw_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCF_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BPW_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UPZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSW_[m2]
8.0e-15, 8.0e-11
**
lognormal
```


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```
FracturePermeability_CHnv[m2]
8.0e-15, 8.0e-11
**.
lognormal
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCF_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BPW_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UPZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSW_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCF_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BPW_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UPZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSW_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPw_
3.0
**
constant
FractureBeta_UCF_
3.0
**
constant
FractureBeta_BPW_
3.0
**
constant
FractureBeta_UPZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSW_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPw_Thickness_1SubArea[m]
34.0
**
constant
UCF_Thickness_1SubArea[m]
67.0
**
constant
BPw_Thickness_1SubArea[m]
0.0
**
constant
UPZ_Thickness_1SubArea[m]
0.0
**
constant
TSW_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPw_Thickness_2SubArea[m]
39.0
**
constant
UCF_Thickness_2SubArea[m]
20.0
**
constant
BPw_Thickness_2SubArea[m]
0.0
**
constant
UPZ_Thickness_2SubArea[m]
0.0
**
constant
TSW_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPw_Thickness_3SubArea[m]
40.0
**
constant
UCF_Thickness_3SubArea[m]
158.0
**
constant
BPw_Thickness_3SubArea[m]
0.0
**
constant
UPZ_Thickness_3SubArea[m]
0.0
**
constant
TSW_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPw_Thickness_4SubArea[m]
34.0
**
constant
UCF_Thickness_4SubArea[m]
57.0
**
constant
BPw_Thickness_4SubArea[m]
0.0
**
constant
UPZ_Thickness_4SubArea[m]
0.0
**
constant
TSW_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPw_Thickness_5SubArea[m]
38.0
**
constant
UCF_Thickness_5SubArea[m]
158.0
**
constant
BPw_Thickness_5SubArea[m]
32.0
**
constant
UPZ_Thickness_5SubArea[m]
0.0
**
constant
TSW_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPw_Thickness_6SubArea[m]
26.0
**
constant
UCF_Thickness_6SubArea[m]
136.0
**
constant
BPw_Thickness_6SubArea[m]
0.0
**
constant
UPZ_Thickness_6SubArea[m]
0.0
**
constant
TSW_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPw_Thickness_7SubArea[m]
43.0
**
constant
UCF_Thickness_7SubArea[m]
63.0
**
constant
BPw_Thickness_7SubArea[m]
0.0
**
constant
UPZ_Thickness_7SubArea[m]
0.0
**
**
**
**          ***>>>  SZFT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
constant
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.6e4
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FracturePorosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixPorosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
constant
ImmobileRD_STFF_Tc
1.0
**
constant
ImmobileRD_STFF_Cl
1.0
**
constant
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
37.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobilePorosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**          ***>>>   DCAGW   <<<***
**
constant
DistanceToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e4, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**          ***>>> FAULTO <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
userdistribution
ThresholdDisplacementforFaultDisruptionOfWP[m]
4
0.1
0.2
0.3
0.4
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNWOrientationOfFaults
0.05
**
uniform
RNtoDetermineFaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[degrees]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[degrees]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**          ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
```

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```
XLocationInRegionOfInterest[m]
548000.0
**
constant
YLocationInRegionOfInterest[m]
4078000.0
**
uniform
RHtoDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**>>> ASHPLUMO <<<**
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**>>> ASHREMOVO <<<**
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoistureFractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPlutoniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmericiumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
**
constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**
**>>> DCAGS <<<**
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**
**>>> CORRELATED PARAMETERS <<<**
**
correlateinputs
SubAreaWetFraction
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSw_[m2]
-0.623
**
correlateinputs
PowFactor
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
PowFactor
MatrixPermeability_TSw_[m2]
0.13
**
correlateinputs
PowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.881
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.260
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endoffile
```


Enhanced ImmobileRD_STFF_Tc tpa10.inp.wpd

06/15/00

```
title
 Input file tpa.inp as supplied with TPA Version 3.2.1
Code.
 Base case data set Rev 3.2.1   2/22/99
**
**
**
**
**>>> GLOBAL PARAMETERS <<<**
**
**
**
**>>> Disruptive Scenario flags <<<**
**
iflag
VolcanismDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
FaultingDisruptiveScenarioFlag(yes=1,no=0)
0
**
iflag
SeismicDisruptiveScenarioFlag(yes=1,no=0)
1
**
**
**
**>>> Subarea Size <<<**
**
**
** Number and Location Of SubAreas[m] Based On
Fig3.4-1 in TSPA95
**subarea
**1
**ZONE T="ONE RECTANGULAR ZONE SUBAREA", F=POINT
**        547405.7        4076362.2
**        548469.3        4076362.2
**        548469.3        4079237.8
**        547405.7        4079237.8
**        547405.7        4076362.2
subarea
7
ZONE T="Subarea 1",I=5,F=POINT
547472.0, 4079323.7
548069.2, 4079136.5
547847.3, 4077816.2
547318.4, 4077934.0
547472.0, 4079323.7
ZONE T="Subarea 2",I=5,F=POINT
548069.2, 4079136.5
548609.7, 4078568.6
548547.9, 4077654.1
547847.3, 4077816.2
548069.2, 4079136.5
ZONE T="Subarea 3",I=5,F=POINT
547318.4, 4077934.0
547847.3, 4077816.2
548322.7, 4077192.2
547474.7, 4077281.6
547318.4, 4077934.0
ZONE T="Subarea 4",I=5,F=POINT
547847.3, 4077816.2
548547.9, 4077654.1
548504.8, 4077170.0
548322.7, 4077192.2
547847.3, 4077816.2
ZONE T="Subarea 5",I=5,F=POINT
547474.7, 4077282.6
547887.3, 4077238.1
547995.0, 4076338.9
547670.4, 4076435.5
547474.7, 4077282.6
ZONE T="Subarea 6",I=5,F=POINT
547887.3, 4077238.1
548322.7, 4077192.2
548319.5, 4076220.2
547995.0, 4076338.9
547887.3, 4077238.1
ZONE T="Subarea 7",I=5,F=POINT
548322.7, 4077192.2
548504.8, 4077170.0
548473.1, 4076533.7
548319.5, 4076220.2
548322.7, 4077192.2
**
iconstant
StartAtSubarea
1
**
iconstant
StopAtSubarea
7
**
**
**
**>>> Nuclides and Chains <<<**
**
**  5/25/1998 tpa3.2 new parameter section
**
**  Nuclides can be eliminated from the basecase set.
**  However, if additional nuclides (Pu242, Am242m,
Pu238, Cm243,
**  U235, Pa231, Ac227, Pu241, U233, Th229, Cm244,
U236, U232, Sm151,
**  Cs137, Sn126, Sn121m, Ag108m, Pd107, Mo93, Zr93,
Sr90, or H163)
**  are added to the basecase set, then corresponding
KDs, EDs,
**  solubilities, gap fractions, and correlations must
be added.
**
iflag
CheckNuclidesAndChains(yes=1,no=0)
0
**
aqueousnuclides
**   number of nuclides, number of chains
20
13
**
**   chain 1
2
Cm246
U238
**   chain 2
3
Cm245
Am241
Np237
**   chain 3
2
Am243
Pu239
**   chain 4
1
Pu240
**   chain 5
4
U234
Th230
Ra226
Pb210
**   chain 6
1
Cs135
**   chain 7
1
I129
**   chain 8
1
Tc99
**   chain 9
1
Ni59
**   chain 10
1
C14
**   chain 11
1
Se79
**   chain 12
1
Nb94
**   chain 13
1
Cl36
**
endofnuclides
**
**
**>>> Parameter Sampling <<<**
**
**  5/25/1998 tpa3.2 new parameter;option to conduct
direct-release only calculation
**
iflag
DirectReleaseOnlyFlag(yes=1,no=0)
0
**
constant
SeedForRandomNumber
188910452.0
**
iflag
LatinHypercubeSampling(yes=1,no=0)
1
**
iconstant
NumberOfRealizations
250
**
iconstant
StartAtRealization
1
**
iconstant
StopAtRealization
0
**
**
**
**>>> Simulation Times <<<**
**
**  6/2/1998 tpa3.2 4 new parameters; calculations at
two time periods
**
constant
DurationOfCompliancePeriod[yr]
1.0e4
**
constant
MaximumTime[yr]
5.0e4
**
** Sum of pre- and post-compliance time steps must not
exceed 201
**
iconstant
NumberOfTimeStepsInCompliancePeriod
140
**
constant
RatioOfLastToFirstTimeStepInCompliancePeriod
100.0
**
**  Next two parameters ignored if MaximumTime[yr] =
DurationOfCompliancePeriod[yr]
**
iconstant
NumberOfTimeStepsAfterCompliancePeriod
61
**
constant
RatioOfLastToFirstTimeStepAfterCompliancePeriod
100.0
**
**
**>>> Output Print Options <<<**
**
iconstant
OutputMode(0=None,1=All,2=UserDefined)
0
**
iconstant
UserDefinedLowerRealizationAppended
1
**
iconstant
UserDefinedUpperRealizationAppended
1
**
**  5/25/1998 tpa3.2 new parameter
**
** Select Append Files
**   0 = append all files
**   1 = uzflow.ech and uzflow.rlt only
**   2 = nfenv.ech and nfenv.rlt only
**   3 = ebsfail.ech and ebsfail.rlt only
**   4 = seismo.ech and seismo.rlt only
**   5 = faulto.ech and faulto.rlt only
**   6 = volcano.ech and volcano.rlt only
**   7 = ebsrel.ech and ebsrel.rlt only
**   8 = uzft.ech and uzft.rlt only
**   9 = szft.ech and szft.rlt only
**   10 = dcagw.ech and dcagw.rlt only
**   11 = ashplumo.ech and ashplumo.rlt only
**   12 = ashzmovo.ech and ashzmovo.rlt only
**   13 = dcags.ech and dcags.rlt only
**   14 = ashplume.cum only
**   15 = faltt.cum only
**   16 = nefiiuz.cum only
**   17 = releaset.cum only
**
iconstant
SelectAppendFiles
0
**
**
**
**>>> UZFLOW <<<**
**
uniform
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
1.0, 10.0
**
uniform
MeanAveragePrecipitationMultiplierAtGlacialMaximum
1.5, 2.5
**
uniform
MeanAverageTemperatureIncreaseAtGlacialMaximum[degC]
-10, -5
**
constant
TimeStepForClimate[yr]
500.0
**
constant
StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr]
0.0
**
constant
StandardDeviationOfMATAboutMeanInOneTimePeriod[degC]
0.0
**
constant
CorrelationBetweenMAPAndMAT
-0.8
**
iconstant
ClimatePerturbationSet
1
**
**
**
**>>> NFENV <<<**
**
iflag
TabularTemperatureRHFlag(yes=1,no=0)
0
**
iconstant
nsetUsedToPickTempRHDataSet
1
**
**  6/2/98 tpa3.2  name change for  UseReflux2
**
iconstant
SelectRefluxModel(1,2,3)
3
**
constant
LengthOfRefluxZone[m]
20
**
constant
MaximumFluxInRefluxZone[m/s]
1.0e-9
**
constant
PerchedBucketVolumePerSAarea[m3/m2]
0.5
**
constant
Reflux2Thickness
100.0
**
constant
Reflux2Porosity
0.14
**
constant
Reflux2SatInit
0.9
**
constant
Reflux2SatResid
0.1
**
constant
Reflux2Period
100.0
**
constant
Reflux2LossI
0.1
**
constant
Reflux2LossD
0.1
**
constant
WPLength[m]
5.682
**
constant
WPDiameter[m]
1.802
**
constant
EmplacementDriftDiameter[m]
5.0
**
constant
WPSpacingAlongEmplacementDrift[m]
19.0
**
**  6/4/98 tpa3.2: Next 4 new parameters specific to
reflux3 model
**
constant
WPUnitCellWidth[m]
22.5
**
loguniform
FractionOfCondensateRemoved[1/yr]
1.0e-8, 1.0
**
uniform
FractionOfCondensateTowardRepository[1/yr]
0.0, 1.0
**
loguniform
FractionOfCondensateTowardRepositoryRemoved[1/yr]
1.0e-8, 1.0
**
constant
DensityOfWaterAtBoiling[kg/m^3]
960.5
**
constant
EnthalpyOfPhaseChangeForWater[J/kg]
2.4e6
**
uniform
TemperatureGradientInVicinityOfBoilingIsotherm[K/m]
1.0, 100.0
**
constant
ArealMassLoading[MTU/acre]
83.0
**
constant
WastePackagePayload[MTU]
9.76
**
constant
AgeOfWaste[yr]
26.0
**
constant
AmbientRepositoryTemperature[C]
20.0
**
constant
MassDensityofYMRock[kg/m^3]
2580.0
**
constant
SpecificHeatofYMRock[J/(kg-K)]
840.0
**
uniform
ThermalConductivityofYMRock[W/(m-K)]
1.8, 2.2
**
constant
EmissivityOfDriftWall[-]
0.8
**
constant
EmissivityOfWastePackage[-]
0.7
**
constant
ThermalConductivityOfFloor[W/(m-C)]
0.6
**
constant
EffectiveThermalConductivityOfUnbackfilledDrift[W/(m-C
)]
0.90
**
constant
TimeOfBackfillEmplaced[yr]
100001.0
**
constant
EffectiveThermalConductivityOfBackfill[W/(m-C)]
0.60
**
constant
ThermalConductivityOfInnerStainlessSteelWall[W/m-C]
15.0
**
constant
ThermalConductivityOfOuterCarbonSteelWall[W/m-C]
50.0
**
constant
EffectiveThermalConductivityOfBasket&SFinWP[W/(m-C)]
1.0
**
constant
ElevationOfRepositoryHorizon[m]
1072.0
**
constant
ElevationOfGroundSurface[m]
1400.0
**
**
**
**>>> EBSFAIL <<<**
**
constant
OuterWPThickness[m]
0.1
**
constant
InnerWPThickness[m]
0.02
**
constant
MetalGrainRadius[micrometer]
13.75
**
constant
GrainBoundaryThickness[micrometer]
7.0e-4
**
constant
DryOxidationConstant
0.00001
**
constant
CriticalRelativeHumidityHumidAirCorrosion
0.55
**
normal
CriticalRelativeHumidityAqueousCorrosion
0.75, 0.85
**
uniform
ThicknessOfWaterFilm[m]
0.001, 0.003
**
constant
BoilingPointOfWater[C]
97.0
**
constant
OuterOverpackErpIntercept
-620.3
**
constant
TempCoefOfOuterPackErpIntercept
0.47
**
constant
OuterOverpackErpSlope
-95.2
**
constant
TempCoefOfOuterPackErpSlope
0.88
**
uniform
InnerOverpackErpIntercept
1040.0,  1240.0
**49.5, 148.5  >>> 625 <<<
**
constant
TempCoefOfInnerPackErpIntercept
0.0
**
constant
InnerOverpackErpSlope
0.0
**-160.8   >>> 625 <<<
**
constant
TempCoefOfInnerPackErpSlope
0.0
**
constant
OuterWPBetaKineticsParameterforOxygen
0.75
**
constant
OuterWPBetaKineticsParameterforWater
0.5
**
constant
InnerWPBetaKineticsParameterforOxygen
0.75
**
constant
InnerWPBetaKineticsParameterforWater
0.5
**
constant
OuterWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.8e12
**
constant
OuterWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
1.6e-1
**
constant
OuterWPActivationEnergyforOxygenReduction[J/mole]
37300.0
**
constant
OuterWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
InnerWPRateConstantforOxygenReduction[coulomb-m/mole/y
r]
3.0e10
**
constant
InnerWPRateConstantforWaterReduction[coulomb-m/m^2/yr]
3.2
**
constant
InnerWPActivationEnergyforOxygenReduction[J/mole]
40000.0
**
constant
InnerWPActivationEnergyforWaterReduction[J/mole]
25000.0
**
constant
AA_1_1[C/m2/yr]
3.15e5
**
uniform
AA_2_1[C/m2/yr]
2.0e4, 6.3e4
**
constant
MeasuredGalvanicCouplePotential
-0.46
**
uniform
CoefForLocCorrOfOuterOverpack
8.66e-4, 8.66e-3
**
constant
ExponetForLocCorrOfOuterOverpack
0.45
**
constant
HumidAirCorrosionRate[m/yr]
1.16e-5
**
constant
LocalizedCorrRateOfInnerOverpack[m/yr]
2.5e-4
**
constant
FractionalCouplingStrength
0.0
**
constant
FactorForDefiningChoiceOfCritPotential
0.0
**
constant
CritChlorideConcForFirstLayer[moL/L]
3.0e-4
**
constant
CritChlorideConcForSecondLayer[moL/L]
1.0
**3.0e-2  >>> 625 <<<
**
uniform
```

06/15/00

```
ChlorideMultFactor
1.0, 30.0
**
constant
ReferencepH
9.0
**
constant
WPsurfaceScaleThickness[m]
0.0
**
constant
TortuosityOfScaleonWP
1.0
**
constant
PorosityOfScaleonWP
1.0
**
constant
YieldStrength[MPa]
205.0
**
constant
SafetyFactor
1.4
**
constant
FractureToughness[MPa-m**0.5]
250.0
**
**
**          ***>>> SEISMO  <<<***
**
hazardcurve
SeismicHazardCurveforSEISMO
10
0.05 180.0
0.10 500.0
0.15 1200.0
0.20 2400.0
0.25 4400.0
0.30 7800.0
0.35 11000.0
0.40 20000.0
0.45 30000.0
0.50 44000.0
**
constant
WeightPercentageOfRockFallThatHitsWPforSEISMO
1.0
**
constant
WeightOfWPforSEISMO[N]
1.27D05
**
constant
WPStiffnessforSEISMO[Pa*m]
1.21D10
**
constant
WPModulusOfElasticityforSEISMO[Pa]
2.07D11
**
normal
RockModulusOfElasticityforSEISMO[Pa]
2.76D10, 4.14D10
**
constant
WPPoissonRatioforSEISMO[]
0.2D0
**
normal
RockPoissonRatioforSEISMO[]
0.15, 0.25
**
constant
RockFallingDistanceforSEISMO[m]
2.0D0
**
constant
WPFallingDistanceforSEISMO[m]
9.3D0
**
iconstant
WPNumberofSupportPairforSEISMO
2
**
constant
WPSupportStiffnessforSEISMO[pa*m]
5.5D09
**
constant
DistributionJointSpacing1forSEISMO
5.0D-03
**
constant
DistributionJointSpacing2forSEISMO
5.0D-03
**
constant
DistributionJointSpacing3forSEISMO
5.0D-03
**
constant
DistributionJointSpacing4forSEISMO
0.629D0
**
constant
DistributionJointSpacing5forSEISMO
0.356D0
**
normal
SEISMOJointSpacing1[m]
0.466, 0.699
**
normal
SEISMOJointSpacing2[m]
0.333 0.466
**
normal
SEISMOJointSpacing3[m]
0.20, 0.333
**
normal
SEISMOJointSpacing4[m]
0.06, 0.20
**
normal
SEISMOJointSpacing5[m]
0.03, 0.06
**
**  5/28/1998 tpa3.2 new value (smh)
**
constant
WPUltimateStrength[N/m^2]
4.5D08
**
constant
GrainDensityforTSw2SEISMO[]
2.55
**
**  5/28/1998 tpa3.2 new values next 60
parameters(replacing seismo.dat)
**
constant
FractionAreaForGroundMotion1
0.05
**
constant
FractionAreaForGroundMotion2
0.12
**
constant
FractionAreaForGroundMotion3
0.17
**
constant
FractionAreaForGroundMotion4
0.23
**
constant
FractionAreaForGroundMotion5
0.28
**
constant
FractionAreaForGroundMotion6
0.34
**
constant
FractionAreaForGroundMotion7
0.4
**
constant
FractionAreaForGroundMotion8
0.46
**
constant
FractionAreaForGroundMotion9
0.5
**
constant
FractionAreaForGroundMotion10
0.54
**
** rwr 7/8/98 modify the VerticalExtentOfRockFall
names by adding '_'
constant
VerticalExtentOfRockFall1_1[m]
0.0
**
constant
VerticalExtentOfRockFall1_2[m]
0.0
**
constant
VerticalExtentOfRockFall1_3[m]
0.0
**
constant
VerticalExtentOfRockFall1_4[m]
0.0
**
constant
VerticalExtentOfRockFall1_5[m]
0.0
**
constant
VerticalExtentOfRockFall1_6[m]
0.0
**
constant
VerticalExtentOfRockFall1_7[m]
0.0
**
constant
VerticalExtentOfRockFall1_8[m]
0.0
constant
VerticalExtentOfRockFall1_9[m]
0.0
**
constant
VerticalExtentOfRockFall1_10[m]
0.0
**
uniform
VerticalExtentOfRockFall2_1[m]
0.5 0.6
**
uniform
VerticalExtentOfRockFall2_2[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall2_3[m]
0.5 1.1
**
uniform
VerticalExtentOfRockFall2_4[m]
0.5 1.2
**
uniform
VerticalExtentOfRockFall2_5[m]
0.5 1.3
**
uniform
VerticalExtentOfRockFall2_6[m]
0.5 1.4
**
uniform
VerticalExtentOfRockFall2_7[m]
0.5 1.45
**
uniform
VerticalExtentOfRockFall2_8[m]
0.5 1.5
**
uniform
VerticalExtentOfRockFall2_9[m]
0.5 1.65
**
uniform
VerticalExtentOfRockFall2_10[m]
0.5 1.8
**
uniform
VerticalExtentOfRockFall3_1[m]
0.5 1.0
**
uniform
VerticalExtentOfRockFall3_2[m]
0.5 2.0
**
uniform
VerticalExtentOfRockFall3_3[m]
0.5 2.5
**
uniform
VerticalExtentOfRockFall3_4[m]
0.5 3.0
**
uniform
VerticalExtentOfRockFall3_5[m]
0.5 3.5
**
uniform
VerticalExtentOfRockFall3_6[m]
0.5 4.0
**
uniform
VerticalExtentOfRockFall3_7[m]
0.5 4.5
**
uniform
VerticalExtentOfRockFall3_8[m]
0.5 5.0
**
uniform
VerticalExtentOfRockFall3_9[m]
0.5 5.7
**
uniform
VerticalExtentOfRockFall3_10[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_1[m]
0.5 2.7
**
uniform
VerticalExtentOfRockFall4_2[m]
0.5 5.5
**
uniform
VerticalExtentOfRockFall4_3[m]
0.5 6.0
**
uniform
VerticalExtentOfRockFall4_4[m]
0.5 6.5
**
uniform
VerticalExtentOfRockFall4_5[m]
0.5 7.0
**
uniform
VerticalExtentOfRockFall4_6[m]
0.5 7.5
**
uniform
VerticalExtentOfRockFall4_7[m]
0.5 8.0
**
uniform
VerticalExtentOfRockFall4_8[m]
0.5 8.5
**
uniform
VerticalExtentOfRockFall4_9[m]
0.5 9.3
**
uniform
VerticalExtentOfRockFall4_10[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_1[m]
0.5 4.7
**
uniform
VerticalExtentOfRockFall5_2[m]
0.5 9.33
**
uniform
VerticalExtentOfRockFall5_3[m]
0.5 9.7
**
uniform
VerticalExtentOfRockFall5_4[m]
0.5 10.0
**
uniform
VerticalExtentOfRockFall5_5[m]
0.5 10.7
**
uniform
VerticalExtentOfRockFall5_6[m]
0.5 11.33
**
uniform
VerticalExtentOfRockFall5_7[m]
0.5 12.0
**
uniform
VerticalExtentOfRockFall5_8[m]
0.5 12.66
**
uniform
VerticalExtentOfRockFall5_9[m]
0.5 13.3
**
uniform
VerticalExtentOfRockFall5_10[m]
0.5 14.0
**
**  5/28/1998 tpa3.2 two new parameters introduced
**
constant
WPYieldPoint[]
0.002
**
constant
WPPlasticElongation[]
0.02
**
**
**          ***>>>  EBSREL  <<<***
**
** rwr 7/8/98 modify flow model flag
iflag
FlowModelFlag(0=BathTub,1=FlowThrough)
0
**
lognormal
FowFactor
0.01, 3.0
**
lognormal
PmultFactor
0.01, 0.2
**
uniform
SubAreaWetFraction
0.0, 1.0
**
**  5/21/98 tpa3.2: New  parameter; nonzero initial
failure times
**
constant
InitialFailureTime[yr]
0.0
**
uniform
DefectiveFractionOfWPs/cell
1.0e-4,  1.0e-2
**
**  6/2/1998 tpa3.2 5 new parameters; number of SEISMO
inservals not to exceed 4
**
iconstant
NumberOfSEISMOWPFailureIntervals
4
**
constant
BeginningOfSEISMOWPFailureInterval1[yr]
0.0
**
constant
BeginningOfSEISMOWPFailureInterval2[yr]
2000.0
**
constant
BeginningOfSEISMOWPFailureInterval3[yr]
5000.0
**
constant
BeginningOfSEISMOWPFailureInterval4[yr]
10000.0
**
constant
WPInternalVolume[m3]
4.83
**
constant
FlowOnsetTemperature[C]
999.
**
constant
SFDensity[kg/m3]
10600.
**
iconstant
SurfaceAreaModel
1
**
iconstant
IModel
2
**
constant
OxygenPartialPressure[atm]
0.21
**
constant
NegativeLog10CarbonateConcentration[mol/L]
3.71
**
constant
UserLeachRate[kg/yr/m2]
2.5e-6
**
constant
RD_Invert_Cm
6.00e3
**
constant
RD_Invert_Pu
3.00e3
**
constant
RD_Invert_U
6.01e2
**
constant
RD_Invert_Am
3.00e3
**
constant
RD_Invert_Np
1.20e3
**
constant
RD_Invert_Th
3.00e3
**
constant
RD_Invert_Ra
6.01e2
**
constant
RD_Invert_Pb
3.01e2
**
constant
RD_Invert_Cs
1.21e2
**
constant
RD_Invert_I
7.00e0
**
constant
RD_Invert_Tc
1.0
**
constant
RD_Invert_Ni
6.10e1
**
constant
RD_Invert_Cl
1.0
**
constant
RD_Invert_C
6.10e1
**
constant
RD_Invert_Se
1.0
**
constant
RD_Invert_Nb
6.01e2
**
constant
GapFractionForCM246
0.0
**
constant
GapFractionForU238
0.0
**
constant
GapFractionForCM245
0.0
**
constant
GapFractionForAM241
0.0
**
constant
GapFractionForNP237
0.0
**
constant
GapFractionForAM243
0.0
**
constant
GapFractionForPU239
0.0
**
constant
GapFractionForPU240
0.0
**
constant
GapFractionForU234
0.0
**
constant
GapFractionForTH230
0.0
**
constant
GapFractionForRA226
0.0
**
constant
GapFractionForPB210
0.0
**
constant
GapFractionForCS135
0.06
**
constant
GapFractionForI129
0.06
**
constant
GapFractionForTC99
0.01
**
constant
GapFractionForNI59
0.0
**
constant
GapFractionForCL36
0.12
**
constant
GapFractionForC14
0.1
**
constant
GapFractionForSE79
0.06
**
constant
GapFractionForNB94
0.0
**
normal
InitialRadiusOfSFParticle[m]
7.0e-4,  3.0e-3
**
constant
RadiusOfSFGrain[m]
1.25e-5
**
constant
CladdingCorrectionFactor
1.0
**
normal
SubGrainFragmentRadiusAfterTransFrac[m]
5.0e-7,  2.0e-6
**
constant
ThicknessOfCladding[m]
6.1e-4
**
constant
SFC-14InventoryPerKgSF[ci]
7.2e-4
**
constant
CladC-14InventoryPerKgSF[ci]
```


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```
4.89e-4
**
constant
DryOxideAndCrudC-14InvPerKgSF[ci]
2.48e-5
**
constant
GapAndGrainBoundaryInventoryPerKgSF[ci]
6.2e-6
**
uniform
SolubilityAm[kg/m3]
2.4e-8,  2.4e-4
**
logtriangular
SolubilityNp[kg/m3]
1.2e-3,  3.4e-2,  2.4e-1
**
constant
Solubility_I[kg/m3]
1.29e2
**
constant
SolubilityTc[kg/m3]
9.93e1
**
constant
SolubilityCl[kg/m3]
3.6e1
**
constant
Solubility_C[kg/m3]
1.4e1
**
constant
Solubility_U[kg/m3]
7.6e-3
**
constant
SolubilityCm[kg/m3]
2.4e-4
**
uniform
SolubilityPu[kg/m3]
2.4e-6, 2.4e-4
**
constant
SolubilityTh[kg/m3]
2.3e-4
**
constant
SolubilityRa[kg/m3]
2.3e-5
**
constant
SolubilityPb[kg/m3]
6.6e5
**
constant
SolubilityCs[kg/m3]
1.35e2
**
constant
SolubilityNi[kg/m3]
1.1e-1
**
constant
SolubilitySe[kg/m3]
7.9e1
**
constant
SolubilityNb[kg/m3]
9.3e-7
**
**  6/2/1998 tpa3.2 next parameter replaced with 44
new parameters
**          SFWettedFraction_(failurekind)_subarea
**
uniform
SFWettedFraction_Initial_1
0.0, 1.0
**
uniform
SFWettedFraction_Initial_2
0.0, 1.0
**
uniform
SFWettedFraction_Initial_3
0.0, 1.0
**
uniform
SFWettedFraction_Initial_4
0.0, 1.0
**
uniform
SFWettedFraction_Initial_5
0.0, 1.0
**
uniform
SFWettedFraction_Initial_6
0.0, 1.0
**
uniform
SFWettedFraction_Initial_7
0.0, 1.0
**
uniform
SFWettedFraction_FAULTO
0.0, 1.0
**
uniform
SFWettedFraction_VOLCANO
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO1_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO2_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO3_7
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_1
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_2
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_3
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_4
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_5
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_6
0.0, 1.0
**
uniform
SFWettedFraction_SEISMO4_7
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_1
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_2
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_3
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_4
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_5
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_6
0.0, 1.0
**
uniform
SFWettedFraction_Corrosion_7
0.0, 1.0
**
**  7/4/1998 tpa3.2 four new parameters for invert
**
iflag
InvertBypass(0=absfilt,1=bypass-absfilt)
0
**
constant
InvertRockPorosity
0.3
**
constant
InvertThickness[m]
0.75
**
constant
InvertDiffusionCoefficient[m^2/yr]
4.4e-5
**
lognormal
InvertMatrixPermeability[m^2]
2.0e-18, 2.0e-16
**
**
**          ***>>>  UZFT  <<<***
**
constant
UnsaturatedZoneMinimumVelocityChangeFactor[Fraction]
0.4
**
constant
MatrixLongitudinalDispersivity[FractionOfLayer]
0.1
**
constant
FractureLongitudinalDispersivity[FractionOfLayer]
0.1
**
lognormal
MatrixKD_TSw_Am[m3/kg]
4.2e+00  3.8e+06
**
lognormal
MatrixKD_CHnvAm[m3/kg]
1.3e+01  1.2e+07
**
lognormal
MatrixKD_CHnzAm[m3/kg]
1.2e+01  1.1e+07
**
lognormal
MatrixKD_BPw_Am[m3/kg]
9.5e+00  8.7e+06
**
lognormal
MatrixKD_UCP_Am[m3/kg]
1.0e+01  9.1e+06
**
lognormal
MatrixKD_BFw_Am[m3/kg]
4.1e+00  3.7e+06
**
lognormal
MatrixKD_UFZ_Am[m3/kg]
3.9e+00  3.5e+06
**
lognormal
MatrixKD_TSw_Np[m3/kg]
1.6e-06  2.2e-01
**
lognormal
MatrixKD_CHnvNp[m3/kg]
4.8e-06  6.6e-01
**
lognormal
MatrixKD_CHnzNp[m3/kg]
4.4e-06  6.0e-01
**
lognormal
MatrixKD_PPw_Np[m3/kg]
3.6e-06  5.0e-01
**
lognormal
MatrixKD_UCP_Np[m3/kg]
3.8e-06  5.2e-01
**
lognormal
MatrixKD_BFw_Np[m3/kg]
1.5e-06  2.1e-01
**
lognormal
MatrixKD_UFZ_Np[m3/kg]
1.5e-06  2.0e-01
**
constant
MatrixKD_TSw_I[m3/kg]
0.0
**
constant
MatrixKD_CHnvI[m3/kg]
0.0
**
constant
MatrixKD_CHnzI[m3/kg]
0.0
**
constant
MatrixKD_PPw_I[m3/kg]
0.0
**
constant
MatrixKD_UCP_I[m3/kg]
0.0
**
constant
MatrixKD_BFw_I[m3/kg]
0.0
**
constant
MatrixKD_UFZ_I[m3/kg]
0.0
**
constant
MatrixKD_TSw_Tc[m3/kg]
0.0
**
constant
MatrixKD_CHnvTc[m3/kg]
0.0
**
constant
MatrixKD_CHnzTc[m3/kg]
0.0
**
constant
MatrixKD_PPw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UCP_Tc[m3/kg]
0.0
**
constant
MatrixKD_BFw_Tc[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Tc[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cl[m3/kg]
0.0
**
constant
MatrixKD_CHnvCl[m3/kg]
0.0
**
constant
MatrixKD_CHnzCl[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UCP_Cl[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cl[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cl[m3/kg]
0.0
**
constant
MatrixKD_TSw_Cm[m3/kg]
0.0
**
constant
MatrixKD_CHnvCm[m3/kg]
0.0
**
constant
MatrixKD_CHnzCm[m3/kg]
0.0
**
constant
MatrixKD_PPw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UCP_Cm[m3/kg]
0.0
**
constant
MatrixKD_BFw_Cm[m3/kg]
0.0
**
constant
MatrixKD_UFZ_Cm[m3/kg]
0.0
**
lognormal
MatrixKD_TSw_U[m3/kg]
4.2e-10  1.1e+00
**
lognormal
MatrixKD_CHnvU[m3/kg]
1.3e-09  3.3e+00
**
lognormal
MatrixKD_CHnzU[m3/kg]
1.2e-09  3.0e+00
**
lognormal
MatrixKD_PPw_U[m3/kg]
9.6e-10  2.5e+00
**
lognormal
MatrixKD_UCP_U[m3/kg]
1.0e-09  2.6e+00
**
lognormal
MatrixKD_BFw_U[m3/kg]
4.1e-10  1.0e+00
**
lognormal
MatrixKD_UFZ_U[m3/kg]
3.9e-10  1.0e+00
**
lognormal
MatrixKD_TSw_Pu[m3/kg]
2.3e-02  2.2e+01
**
lognormal
MatrixKD_CHnvPu[m3/kg]
7.1e-02  6.7e+01
**
lognormal
MatrixKD_CHnzPu[m3/kg]
6.5e-02  6.1e+01
**
lognormal
MatrixKD_PPw_Pu[m3/kg]
5.3e-02  5.0e+01
**
lognormal
MatrixKD_UCP_Pu[m3/kg]
5.6e-02  5.2e+01
**
lognormal
MatrixKD_BFw_Pu[m3/kg]
2.3e-02  2.1e+01
**
lognormal
MatrixKD_UFZ_Pu[m3/kg]
2.2e-02  2.1e+01
**
lognormal
MatrixKD_TSw_Th[m3/kg]
4.8e-05  2.5e+03
**
lognormal
MatrixKD_CHnvTh[m3/kg]
1.5e-04  7.6e+03
**
lognormal
MatrixKD_CHnzTh[m3/kg]
1.3e-04  6.9e+03
**
lognormal
MatrixKD_PPw_Th[m3/kg]
1.1e-04  5.7e+03
**
lognormal
MatrixKD_UCP_Th[m3/kg]
1.1e-04  5.9e+03
**
lognormal
MatrixKD_BFw_Th[m3/kg]
4.7e-05  2.4e+03
**
lognormal
MatrixKD_UFZ_Th[m3/kg]
4.5e-05  2.3e+03
**
loguniform
MatrixKD_TSw_Ra[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvRa[m3/kg]
0.050, 0.10
**
loguniform
MatrixKD_CHnzRa[m3/kg]
1.0, 5.0
**
loguniform
MatrixKD_PPw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UCP_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_BFw_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_UFZ_Ra[m3/kg]
0.1, 0.5
**
loguniform
MatrixKD_TSw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnvPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_CHnzPb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_PPw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UCP_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_BFw_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_UFZ_Pb[m3/kg]
0.10, 0.50
**
loguniform
MatrixKD_TSw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_CHnvCs[m3/kg]
0.010, 0.10
**
loguniform
MatrixKD_CHnzCs[m3/kg]
0.50, 5.0
**
loguniform
MatrixKD_PPw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UCP_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_BFw_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_UFZ_Cs[m3/kg]
0.020, 1.0
**
loguniform
MatrixKD_TSw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_CHnvNi[m3/kg]
1.0e-6, 0.10
**
loguniform
MatrixKD_CHnzNi[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_PPw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_UCP_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
MatrixKD_BFw_Ni[m3/kg]
5.0e-6, 0.50
**
loguniform
```

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```
MatrixKD_UPZ_Ni[m3/kg]
5.0e-6, 0.50
**
constant
MatrixKD_TSw_C[m3/kg]
0.0
**
constant
MatrixKD_CHnvC[m3/kg]
0.0
**
constant
MatrixKD_CHnzC[m3/kg]
0.0
**
constant
MatrixKD_PPw_C[m3/kg]
0.0
**
constant
MatrixKD_UCP_C[m3/kg]
0.0
**
constant
MatrixKD_BPw_C[m3/kg]
0.0
**
constant
MatrixKD_UPZ_C[m3/kg]
0.0
**
loguniform
MatrixKD_TSw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_CHnvSe[m3/kg]
2.0e-7, 0.020
**
loguniform
MatrixKD_CHnzSe[m3/kg]
1.5e-7, 0.015
**
loguniform
MatrixKD_PPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UCP_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_BPw_Se[m3/kg]
3.0e-7, 0.030
**
loguniform
MatrixKD_UPZ_Se[m3/kg]
3.0e-7, 0.030
**
constant
MatrixKD_TSw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_CHnvNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_CHnzNb[m3/kg]
0.10, 1.0
**
constant
MatrixKD_PPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UCP_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_BPw_Nb[m3/kg]
0.10, 2.0
**
constant
MatrixKD_UPZ_Nb[m3/kg]
0.10, 2.0
**
constant
FractureRD_TSw_Am
1.0
**
constant
FractureRD_CHnvAm
1.0
**
constant
FractureRD_CHnzAm
1.0
**
constant
FractureRD_PPw_Am
1.0
**
constant
FractureRD_UCP_Am
1.0
**
constant
FractureRD_BPw_Am
1.0
**
constant
FractureRD_UPZ_Am
1.0
**
constant
FractureRD_TSw_Np
1.0
**
constant
FractureRD_CHnvNp
1.0
**
constant
FractureRD_CHnzNp
1.0
**
constant
FractureRD_PPw_Np
1.0
**
constant
FractureRD_UCP_Np
1.0
**
constant
FractureRD_BPw_Np
1.0
**
constant
FractureRD_UPZ_Np
1.0
**
constant
FractureRD_TSw_I
1.0
**
constant
FractureRD_CHnvI
1.0
**
constant
FractureRD_CHnzI
1.0
**
constant
FractureRD_PPw_I
1.0
**
constant
FractureRD_UCP_I
1.0
**
```

```
constant
FractureRD_BPw_I
1.0
**
constant
FractureRD_UPZ_I
1.0
**
constant
FractureRD_TSw_Tc
1.0
**
constant
FractureRD_CHnvTc
1.0
**
constant
FractureRD_CHnzTc
1.0
**
constant
FractureRD_PPw_Tc
1.0
**
constant
FractureRD_UCP_Tc
1.0
**
constant
FractureRD_BPw_Tc
1.0
**
constant
FractureRD_UPZ_Tc
1.0
**
constant
FractureRD_TSw_Cl
1.0
**
constant
FractureRD_CHnvCl
1.0
**
constant
FractureRD_CHnzCl
1.0
**
constant
FractureRD_PPw_Cl
1.0
**
constant
FractureRD_UCP_Cl
1.0
**
constant
FractureRD_BPw_Cl
1.0
**
constant
FractureRD_UPZ_Cl
1.0
**
constant
FractureRD_TSw_Cm
1.0
**
constant
FractureRD_CHnvCm
1.0
**
constant
FractureRD_CHnzCm
1.0
**
constant
FractureRD_PPw_Cm
1.0
**
constant
FractureRD_UCP_Cm
1.0
**
constant
FractureRD_BPw_Cm
1.0
**
constant
FractureRD_UPZ_Cm
1.0
**
constant
FractureRD_TSw_U
1.0
**
constant
FractureRD_CHnvU
1.0
**
constant
FractureRD_CHnzU
1.0
**
constant
FractureRD_PPw_U
1.0
**
constant
FractureRD_UCP_U
1.0
**
constant
FractureRD_BPw_U
1.0
**
constant
FractureRD_UPZ_U
1.0
**
constant
FractureRD_TSw_Pu
1.0
**
constant
FractureRD_CHnvPu
1.0
**
constant
FractureRD_CHnzPu
1.0
**
constant
FractureRD_PPw_Pu
1.0
**
constant
FractureRD_UCP_Pu
1.0
**
constant
FractureRD_BPw_Pu
1.0
**
constant
FractureRD_UPZ_Pu
1.0
**
constant
FractureRD_TSw_Th
1.0
**
constant
FractureRD_CHnvTh
1.0
**
constant
FractureRD_CHnzTh
1.0
**
constant
FractureRD_PPw_Th
1.0
```

```
**
constant
FractureRD_UCP_Th
1.0
**
constant
FractureRD_BPw_Th
1.0
**
constant
FractureRD_UPZ_Th
1.0
**
constant
FractureRD_TSw_Ra
1.0
**
constant
FractureRD_CHnvRa
1.0
**
constant
FractureRD_CHnzRa
1.0
**
constant
FractureRD_PPw_Ra
1.0
**
constant
FractureRD_UCP_Ra
1.0
**
constant
FractureRD_BPw_Ra
1.0
**
constant
FractureRD_UPZ_Ra
1.0
**
constant
FractureRD_TSw_Pb
1.0
**
constant
FractureRD_CHnvPb
1.0
**
constant
FractureRD_CHnzPb
1.0
**
constant
FractureRD_PPw_Pb
1.0
**
constant
FractureRD_UCP_Pb
1.0
**
constant
FractureRD_BPw_Pb
1.0
**
constant
FractureRD_UPZ_Pb
1.0
**
constant
FractureRD_TSw_Cs
1.0
**
constant
FractureRD_CHnvCs
1.0
**
constant
FractureRD_CHnzCs
1.0
**
constant
FractureRD_PPw_Cs
1.0
**
constant
FractureRD_UCP_Cs
1.0
**
constant
FractureRD_BPw_Cs
1.0
**
constant
FractureRD_UPZ_Cs
1.0
**
constant
FractureRD_TSw_Ni
1.0
**
constant
FractureRD_CHnvNi
1.0
**
constant
FractureRD_CHnzNi
1.0
**
constant
FractureRD_PPw_Ni
1.0
**
constant
FractureRD_UCP_Ni
1.0
**
constant
FractureRD_BPw_Ni
1.0
**
constant
FractureRD_UPZ_Ni
1.0
**
constant
FractureRD_TSw_C
1.0
**
constant
FractureRD_CHnvC
1.0
**
constant
FractureRD_CHnzC
1.0
**
constant
FractureRD_PPw_C
1.0
**
constant
FractureRD_UCP_C
1.0
**
constant
FractureRD_BPw_C
1.0
**
constant
FractureRD_UPZ_C
1.0
**
constant
FractureRD_TSw_Se
1.0
**
constant
FractureRD_CHnvSe
1.0
**
constant
FractureRD_CHnzSe
```

```
1.0
**
constant
FractureRD_PPw_Se
1.0
**
constant
FractureRD_UCP_Se
1.0
**
constant
FractureRD_BPw_Se
1.0
**
constant
FractureRD_UPZ_Se
1.0
**
constant
FractureRD_TSw_Nb
1.0
**
constant
FractureRD_CHnvNb
1.0
**
constant
FractureRD_CHnzNb
1.0
**
constant
FractureRD_PPw_Nb
1.0
**
constant
FractureRD_UCP_Nb
1.0
**
constant
FractureRD_BPw_Nb
1.0
**
constant
FractureRD_UPZ_Nb
1.0
**
lognormal
MatrixPermeability_TSw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_CHnv[m2]
0.2e-14, 0.2e-12
**
lognormal
MatrixPermeability_CHnz[m2]
0.5e-18, 0.5e-16
**
lognormal
MatrixPermeability_PPw_[m2]
0.1e-17, 0.1e-15
**
lognormal
MatrixPermeability_UCP_[m2]
0.3e-18, 0.3e-16
**
lognormal
MatrixPermeability_BPw_[m2]
0.2e-19, 0.2e-17
**
lognormal
MatrixPermeability_UPZ_[m2]
1.8e-18, 2.1e-16
**
constant
MatrixPorosity_TSw_
0.12
**
constant
MatrixPorosity_CHnv
0.33
**
constant
MatrixPorosity_CHnz
0.32
**
constant
MatrixPorosity_PPw_
0.28
**
constant
MatrixPorosity_UCP_
0.28
**
constant
MatrixPorosity_BPw_
0.12
**
constant
MatrixPorosity_UPZ_
0.12
**
constant
MatrixBeta_TSw_
1.5
**
constant
MatrixBeta_CHnv
1.3
**
constant
MatrixBeta_CHnz
2.3
**
constant
MatrixBeta_PPw_
1.5
**
constant
MatrixBeta_UCP_
1.4
**
constant
MatrixBeta_BPw_
1.7
**
constant
MatrixBeta_UPZ_
2.3
**
constant
MatrixGrainDensity_TSw_[kg/m3]
2460.0
**
constant
MatrixGrainDensity_CHnv[kg/m3]
2260.0
**
constant
MatrixGrainDensity_CHnz[kg/m3]
2400.0
**
constant
MatrixGrainDensity_PPw_[kg/m3]
2540.0
**
constant
MatrixGrainDensity_UCP_[kg/m3]
2420.0
**
constant
MatrixGrainDensity_BPw_[kg/m3]
2570.0
**
constant
MatrixGrainDensity_UPZ_[kg/m3]
2630.0
**
lognormal
FracturePermeability_TSw_[m2]
8.0e-15, 8.0e-11
**
lognormal
```


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```
FracturePermeability_CHnv[m2]
8.0e-15, 8.0e-11
**
lognormal
FracturePermeability_CHnz[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_PPw_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_UCP_[m2]
6.0e-15, 6.0e-11
**
lognormal
FracturePermeability_BPw_[m2]
3.0e-15, 3.0e-11
**
lognormal
FracturePermeability_UPZ_[m2]
1.0e-13, 1.0e-11
**
loguniform
FracturePorosity_TSw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnv
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_CHnz
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_PPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UCP_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_BPw_
1.0e-3, 1.0e-2
**
loguniform
FracturePorosity_UPZ_
1.0e-3, 1.0e-2
**
constant
FractureBeta_TSw_
3.0
**
constant
FractureBeta_CHnv
3.0
**
constant
FractureBeta_CHnz
3.0
**
constant
FractureBeta_PPw_
3.0
**
constant
FractureBeta_UCP_
3.0
**
constant
FractureBeta_BPw_
3.0
**
constant
FractureBeta_UPZ_
3.0
**
constant
InletArea__1SubArea[m2]
5.4e5
**
constant
InletArea__2SubArea[m2]
5.4e5
**
constant
InletArea__3SubArea[m2]
5.4e5
**
constant
InletArea__4SubArea[m2]
5.4e5
**
constant
InletArea__5SubArea[m2]
5.4e5
**
constant
InletArea__6SubArea[m2]
5.4e5
**
constant
InletArea__7SubArea[m2]
5.4e5
**
constant
TSw_Thickness_1SubArea[m]
33.0
**
constant
CHnvThickness_1SubArea[m]
0.0
**
constant
CHnzThickness_1SubArea[m]
163.0
**
constant
PPw_Thickness_1SubArea[m]
34.0
**
constant
UCP_Thickness_1SubArea[m]
67.0
**
constant
BPw_Thickness_1SubArea[m]
0.0
**
constant
UPZ_Thickness_1SubArea[m]
0.0
**
constant
TSw_Thickness_2SubArea[m]
116.0
**
constant
CHnvThickness_2SubArea[m]
0.0
**
constant
CHnzThickness_2SubArea[m]
154.0
**
constant
PPw_Thickness_2SubArea[m]
39.0
**
constant
UCP_Thickness_2SubArea[m]
20.0
**
constant
BPw_Thickness_2SubArea[m]
0.0
**
constant
UPZ_Thickness_2SubArea[m]
0.0
**
```

```
constant
TSw_Thickness_3SubArea[m]
20.0
**
constant
CHnvThickness_3SubArea[m]
0.0
**
constant
CHnzThickness_3SubArea[m]
122.0
**
constant
PPw_Thickness_3SubArea[m]
40.0
**
constant
UCP_Thickness_3SubArea[m]
158.0
**
constant
BPw_Thickness_3SubArea[m]
0.0
**
constant
UPZ_Thickness_3SubArea[m]
0.0
**
constant
TSw_Thickness_4SubArea[m]
110.0
**
constant
CHnvThickness_4SubArea[m]
0.0
**
constant
CHnzThickness_4SubArea[m]
132.0
**
constant
PPw_Thickness_4SubArea[m]
34.0
**
constant
UCP_Thickness_4SubArea[m]
57.0
**
constant
BPw_Thickness_4SubArea[m]
0.0
**
constant
UPZ_Thickness_4SubArea[m]
0.0
**
constant
TSw_Thickness_5SubArea[m]
20.0
**
constant
CHnvThickness_5SubArea[m]
113.0
**
constant
CHnzThickness_5SubArea[m]
0.0
**
constant
PPw_Thickness_5SubArea[m]
38.0
**
constant
UCP_Thickness_5SubArea[m]
158.0
**
constant
BPw_Thickness_5SubArea[m]
32.0
**
constant
UPZ_Thickness_5SubArea[m]
0.0
**
constant
TSw_Thickness_6SubArea[m]
53.0
**
constant
CHnvThickness_6SubArea[m]
125.0
**
constant
CHnzThickness_6SubArea[m]
0.0
**
constant
PPw_Thickness_6SubArea[m]
26.0
**
constant
UCP_Thickness_6SubArea[m]
136.0
**
constant
BPw_Thickness_6SubArea[m]
0.0
**
constant
UPZ_Thickness_6SubArea[m]
0.0
**
constant
TSw_Thickness_7SubArea[m]
121.0
**
constant
CHnvThickness_7SubArea[m]
0.0
**
constant
CHnzThickness_7SubArea[m]
114.0
**
constant
PPw_Thickness_7SubArea[m]
43.0
**
constant
UCP_Thickness_7SubArea[m]
63.0
**
constant
BPw_Thickness_7SubArea[m]
0.0
**
constant
UPZ_Thickness_7SubArea[m]
0.0
**
**
**          ***>>>  SZFT  <<<***
**
constant
MixingZoneDispersionFraction
0.01
**
constant
DispersionFraction_STFF
0.01
**
constant
DispersionFraction_SAV
0.1
**
constant
MinimumResidenceTime_STFF[yr]
10.0
**
constant
MinimumResidenceTime_SAV[yr]
10.0
**
```

```
constant
FractureRD_STFF_Am
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Am
7.5e4, 6.8e10
**
constant
FractureRD_STFF_Np
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Np
1.0, 3.9e3
**
constant
FractureRD_STFF_I
1.0
**
loguniform
AlluviumMatrixRD_SAV_I
1.0, 4.0
**
constant
FractureRD_STFF_Tc
1.0
**
constant
AlluviumMatrixRD_SAV_Tc
1.0
**
constant
FractureRD_STFF_Cl
1.0
**
constant
AlluviumMatrixRD_SAV_Cl
1.0
**
constant
FractureRD_STFF_Cm
1.0
**
constant
AlluviumMatrixRD_SAV_Cm
7.5e4
**
constant
FractureRD_STFF_U
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_U
1.0, 1.9e4
**
constant
FractureRD_STFF_Pu
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Pu
4.2e2, 3.9e5
**
constant
FractureRD_STFF_Th
1.0
**
** rwr 7/8/98 use KDs from D. Turner with
** por = 0.125 and grain dens = 2470 kg/m3
lognormal
AlluviumMatrixRD_SAV_Th
1.9, 4.5e7
**
constant
FractureRD_STFF_Ra
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ra
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Pb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Pb
2.0e3, 8.0e3
**
constant
FractureRD_STFF_Cs
1.0
**
loguniform
AlluviumMatrixRD_SAV_Cs
9.0e4, 1.0e5
**
constant
FractureRD_STFF_Ni
1.0
**
loguniform
AlluviumMatrixRD_SAV_Ni
1.0, 8.0e3
**
constant
FractureRD_STFF_C
1.0
**
constant
AlluviumMatrixRD_SAV_C
1.0
**
constant
FractureRD_STFF_Se
1.0
**
loguniform
AlluviumMatrixRD_SAV_Se
1.0, 500.0
**
constant
FractureRD_STFF_Nb
1.0
**
loguniform
AlluviumMatrixRD_SAV_Nb
2.0e3, 3.0e4
**
loguniform
FracturePorosity_STFF
1.e-3, 1.e-2
**
uniform
AlluviumMatrixPorosity_SAV
1.e-1, 1.5e-1
**
constant
ImmobileRD_STFF_Am
1.8e4
**
constant
ImmobileRD_STFF_Np
19.0
**
constant
ImmobileRD_STFF_I
1.0
**
constant
ImmobileRD_STFF_Tc
2.4e5
**
constant
```

```
ImmobileRD_STFF_Cl
1.0
**
constant
ImmobileRD_STFF_Cm
1.8e4
**
constant
ImmobileRD_STFF_U
17.0
**
constant
ImmobileRD_STFF_Pu
1.8e3
**
constant
ImmobileRD_STFF_Th
1.8e4
**
constant
ImmobileRD_STFF_Ra
5.4e3
**
constant
ImmobileRD_STFF_Pb
5.4e3
**
constant
ImmobileRD_STFF_Cs
9.0e3
**
constant
ImmobileRD_STFF_Ni
1.8e3
**
constant
ImmobileRD_STFF_C
1.0
**
constant
ImmobileRD_STFF_Se
55.0
**
constant
ImmobileRD_STFF_Nb
1.8e4
**
constant
ImmobilePorosity_STFF
0.01
**
constant
DiffusionRate_STFF
0.0
**
**
**          ***>>>  DCAGW  <<<***
**
constant
DistanceToReceptorGroup[km][should_be_10_or_20]
20.0
**
uniform
WellPumpingRateAtReceptorGroup10km[gal/day]
1.5e4, 2.64e5
**
uniform
WellPumpingRateAtReceptorGroup20km[gal/day]
4.5e6, 1.3e7
**
uniform
PlumeThickness5km[m]
10.0, 100.0
**
uniform
AquiferThickness5km[m]
300.0, 700.0
**
uniform
MixingZoneThickness20km[m]
50.0, 200.0
**
**
**          ***>>> FAULTS <<<***
**
finiteexponential
TimeOfNextFaultingEventinRegionOfInterest[yr]
100.0, 10000.0, 2.0e-5
**
uniformdistribution
ThresholdDisplacementforFaultDisruptionOfWP[m]
4
0.1
0.2
0.3
0.4
**
uniform
XLocationOfFaultingEventInRegionOfInterest[m]
547400.0, 548600.0
**
uniform
YLocationOfFaultingEventInRegionOfInterest[m]
4076200.0, 4079040.0
**
constant
ProbabilityForNWOrientationOfFaults
0.05
**
uniform
NWcoDetermineFaultOrientation
0.0, 1.0
**
constant
NWFaultStrikeOrientationMeasuredfromNorthClockwise[degrees]
-32.5
**
constant
NEFaultStrikeOrientationMeasuredfromNorthClockwise[degrees]
10.0
**
constant
NWFaultTraceLength[m]
4000.0
**
constant
NEFaultTraceLength[m]
4000.0
**
beta
NWFaultZoneWidth[m]
0.5, 275.0, 1.25, 15.0
**
beta
NEFaultZoneWidth[m]
0.5, 365.0, 1.25, 15.0
**
lognormal
NWAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
lognormal
NEAmountOfLargestCredibleDisplacement[m]
5.41e-2, 3.3e-1
**
constant
NWCumulativeDisplacementRate[mm/yr]
0.00005
**
constant
NECumulativeDisplacementRate[mm/yr]
0.00005
**
**
**          ***>>> VOLCANO <<<***
**
finiteexponential
TimeOfNextVolcanicEventinRegionOfInterest[yr]
100.0, 10000.0, 1.0e-7
**
constant
```

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```
XLocationInRegionOfInterest[m]
548000.0
**
constant
YLocationInRegionOfInterest[m]
4078000.0
**
uniform
NHcDetermineIfExtrusiveOrIntrusiveVolcanicEvent
0.0, 1.0
**
constant
FractionOfTimeVolcanicEventIsExtrusive
0.999
**
uniform
AngleOfVolcanicDikeMeasuredFromNorthClockwise[degrees]
0.0, 15.0
**
uniform
LengthOfVolcanicDike[m]
2000.0, 11000.0
**
uniform
WidthOfVolcanicDike[m]
1.0, 10.0
**
uniform
DiameterOfVolcanicCone[m]
24.6, 77.9
**
**
**          ***>>> ASHPLUMO <<<***
**
constant
DensityOfAirAtSTP[g/cm3]
0.00129
**
constant
ViscosityOfAirAtSTP[g/cm-s]
0.00018
**
constant
ConstantRelatingFallTimeToEddyDiffusivity[cm2/s5/2]
400.0
**
constant
MaximumParticleDiameterForParticleTransport[cm]
10.d0
**
constant
MinimumFuelParticulateSize[cm]
0.0001
**
constant
ModeFuelParticulateSize[cm]
0.001
**
constant
MaximumFuelParticulateSize[cm]
0.01
**
constant
MinimumAshDensityForVariationWithSize[g/cm3]
1.2
**
constant
MaximumAshDensityForVariationWithSize[g/cm3]
2.0
**
constant
MinimumAshLogdiameterForDensityVariation
-2.0
**
constant
MaximumAshLogdiameterForDensityVariation
-1.0
**
constant
ParticleShapeParameter
0.5
**
constant
IncorporationRatio
0.3
**
constant
WindDirection[degrees]
-90.0
**
exponential
WindSpeed[cm/s]
0.00083
**
loguniform
VolcanicEventDuration[s]
6.13e4, 7.24e6
**
loguniform
VolcanicEventPower[W]
2.57e9, 3.55e11
**
constant
VolcanicColumnConstantBeta
10.0
**
logtriangular
AshMeanParticleLogDiameter[d_in_cm]
0.01, 0.1, 1.0
**
constant
AshParticleSizeDistributionStandardDeviation
1.0
**
**
**          ***>>> ASHRMOVO  <<<***
**
constant
RelativeRateOfBlanketRemoval[1/yr]
0.001
**
constant
FractionOfPrecipitationLostToEvapotranspiration
0.68
**
constant
FractionOfIrrigationLostToEvapotranspiration
0.5
**
constant
AnnualPrecipitation[m/yr]
0.085
**
constant
AnnualIrrigation[m/yr]
1.52
**
constant
FractionOfYearSoilIsSaturatedDueToPrecipitation
0.0054
**
constant
FractionOfYearSoilIsSaturatedDueToIrrigation
0.2
**
constant
AshBulkDensity[g/cm3]
1.4
**
constant
AshVolumetricMoistureFractionAtSaturation
0.4
**
constant
DepthOfTheRootingZone[m]
0.15
**
constant
KdOfUraniumInVolcanicAsh[cm3/g]
35.0
**
constant
KdOfCuriumInVolcanicAsh[cm3/g]
4000.0
**
constant
KdOfPlutoniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfAmericiumInVolcanicAsh[cm3/g]
1900.0
**
constant
KdOfThoriumInVolcanicAsh[cm3/g]
3200.0
**
constant
KdOfRadiumInVolcanicAsh[cm3/g]
500.0
**
constant
KdOfLeadInVolcanicAsh[cm3/g]
270.0
**
constant
KdOfProtactiniumInVolcanicAsh[cm3/g]
550.0
**
constant
KdOfActiniumInVolcanicAsh[cm3/g]
450.0
**
constant
KdOfNeptuniumInVolcanicAsh[cm3/g]
5.0
**
constant
KdOfSamariumInVolcanicAsh[cm3/g]
245.0
**
constant
KdOfCesiumInVolcanicAsh[cm3/g]
280.0
**
constant
KdOfIodineInVolcanicAsh[cm3/g]
1.0
**
constant
KdOfTinInVolcanicAsh[cm3/g]
130.0
**
constant
KdOfSilverInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfPaladiumInVolcanicAsh[cm3/g]
55.0
**
constant
KdOfTechnetiumInVolcanicAsh[cm3/g]
0.1
**
constant
KdOfMolybdenumInVolcanicAsh[cm3/g]
10.0
**
constant
KdOfNiobiumInVolcanicAsh[cm3/g]
160.0
**
constant
KdOfZirconiumInVolcanicAsh[cm3/g]
600.0
**
constant
KdOfStrontiumInVolcanicAsh[cm3/g]
15.0
**
constant
KdOfSeleniumInVolcanicAsh[cm3/g]
150.0
**
constant
KdOfNickelInVolcanicAsh[cm3/g]
400.0
**
constant
KdOfChlorineInVolcanicAsh[cm3/g]
0.0
**
constant
KdOfCarbonInVolcanicAsh[cm3/g]
5.0
**
constant
SolubilityOfUraniumInVolcanicAsh[moles/liter]
4.5e-5
**
constant
SolubilityOfCuriumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfPlutoniumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfAmeriziumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfThoriumInVolcanicAsh[moles/liter]
3.2e-9
**
constant
SolubilityOfRadiumInVolcanicAsh[moles/liter]
1.0e-7
**
constant
SolubilityOfLeadInVolcanicAsh[moles/liter]
3.2e-7
**
constant
SolubilityOfProtactiniumInVolcanicAsh[moles/liter]
3.2e-8
**
constant
SolubilityOfActiniumInVolcanicAsh[moles/liter]
1.0e-6
**
constant
SolubilityOfNeptuniumInVolcanicAsh[moles/liter]
1.0e-4
**
constant
SolubilityOfSamariumInVolcanicAsh[moles/liter]
5.0e-6
**
constant
SolubilityOfCesiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfIodineInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfTinInVolcanicAsh[moles/liter]
5.0e-8
**
constant
SolubilityOfSilverInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfPaladiumInVolcanicAsh[moles/liter]
9.5e-4
**
constant
SolubilityOfTechnetiumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfMolybdenumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNiobiumInVolcanicAsh[moles/liter]
1.0e-8
**
constant
SolubilityOfZirconiumInVolcanicAsh[moles/liter]
3.2e-10
**
constant
SolubilityOfStrontiumInVolcanicAsh[moles/liter]
1.3e-4
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constant
SolubilityOfSeleniumInVolcanicAsh[moles/liter]
1.0
**
constant
SolubilityOfNickelInVolcanicAsh[moles/liter]
2.0e-3
**
constant
SolubilityOfChlorineInVolcanicAsh[moles/liter]
1.0
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constant
SolubilityOfCarbonInVolcanicAsh[moles/liter]
1.0
**
**
**          ***>>>   DCAGS   <<<***
**
constant
DistanceCutoffForDoseConversionDualityInDCAGS[km]
19.99
**
loguniform
AirborneMassLoadForVolcanismDoseCalculation[g/m3]
1.0e-4, 1.0e-2
**
constant
OccupancyFactorForVolcanismDoseCalculation[-]
0.24
**
constant
DepthOfResuspendableLayer[cm]
0.3
**
**
**          ***>>>   CORRELATED PARAMETERS   <<<***
**
correlateinputs
SubAreaWetFraction
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
0.631
**
correlateinputs
SubAreaWetFraction
MatrixPermeability_TSW_[m2]
-0.623
**
correlateinputs
FowFactor
ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]
-0.224
**
correlateinputs
FowFactor
MatrixPermeability_TSW_[m2]
0.13
**
correlateinputs
FowFactor
SubAreaWetFraction
-0.366
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Pu
0.964
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_U
0.346
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Np
0.837
**
correlateinputs
AlluviumMatrixRD_SAV_Am
AlluviumMatrixRD_SAV_Th
0.112
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_U
0.489
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Np
0.881
**
correlateinputs
AlluviumMatrixRD_SAV_Pu
AlluviumMatrixRD_SAV_Th
0.109
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_Th
0.260
**
correlateinputs
AlluviumMatrixRD_SAV_Np
AlluviumMatrixRD_SAV_U
0.610
**
correlateinputs
AlluviumMatrixRD_SAV_Th
AlluviumMatrixRD_SAV_U
0.165
**
endoffile
```
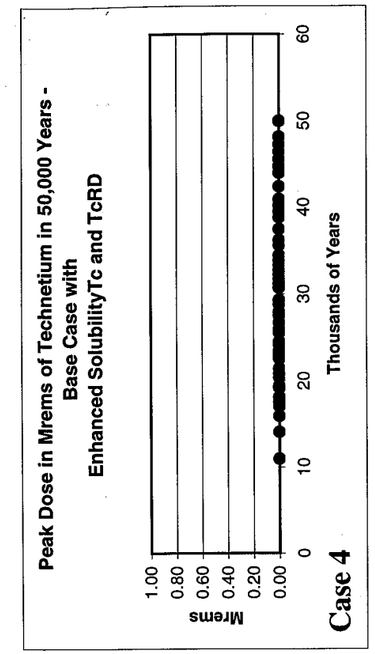
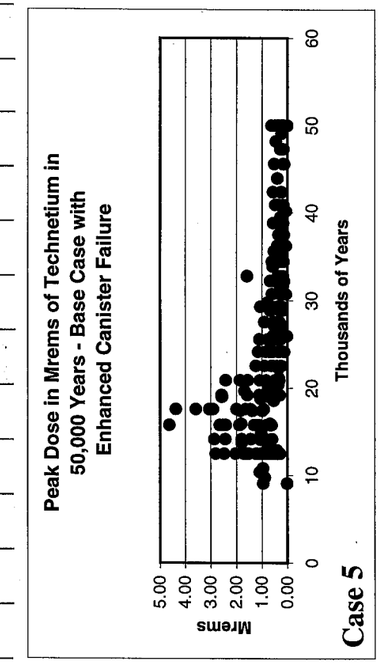
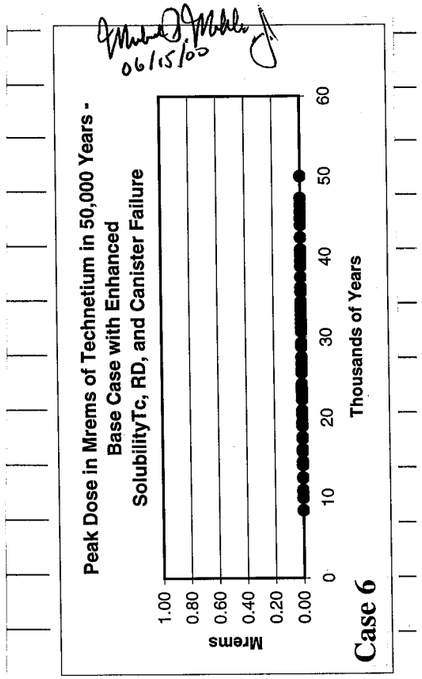
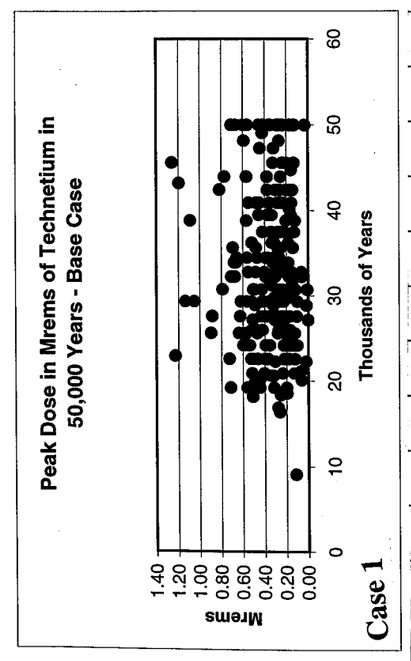


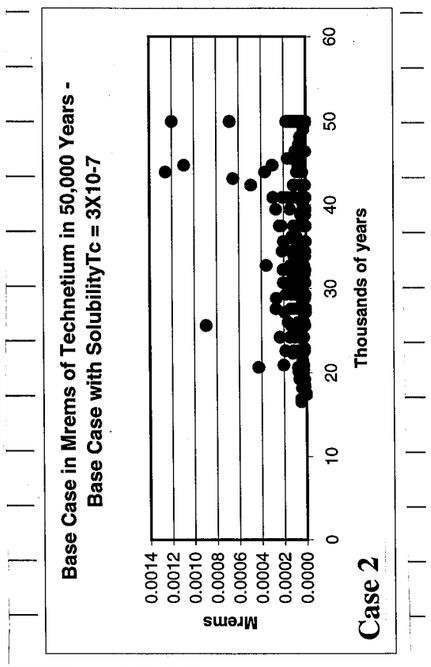
06/15/00

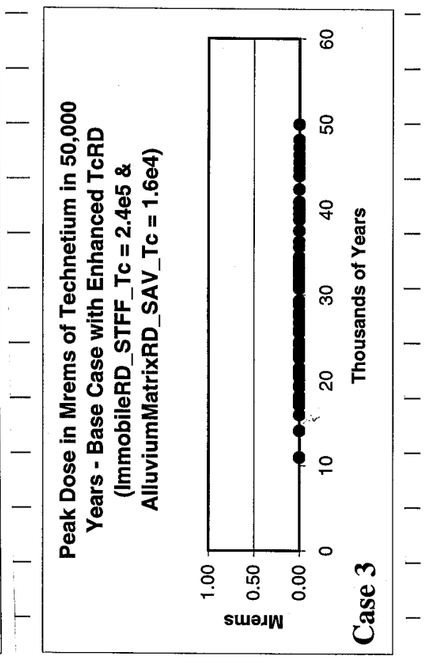


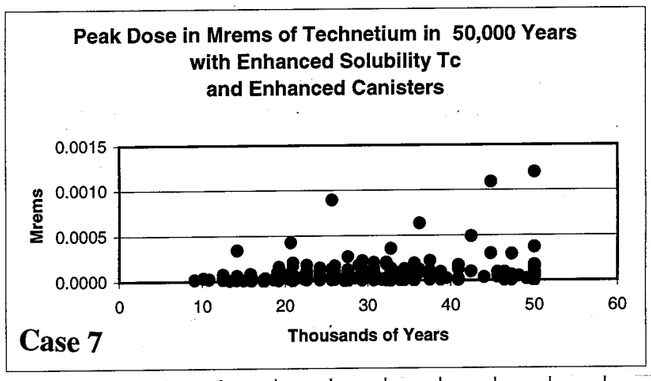




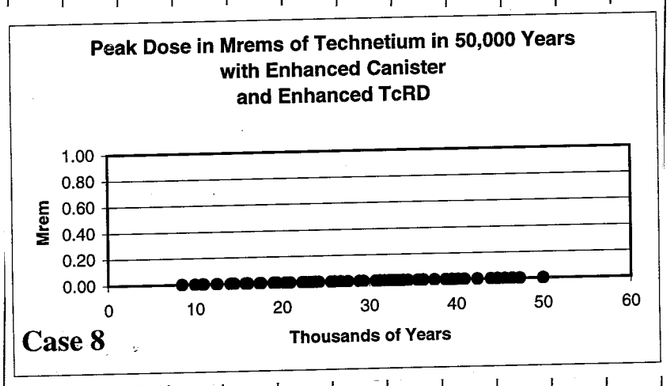




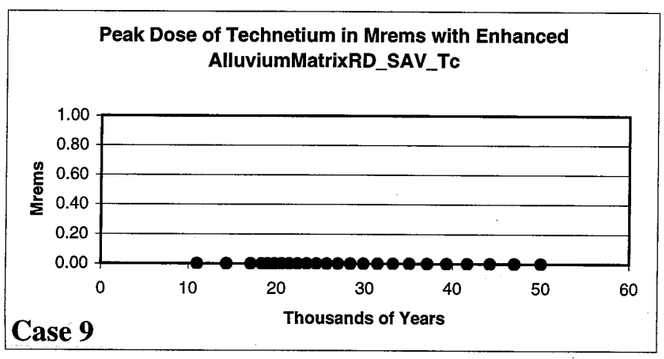




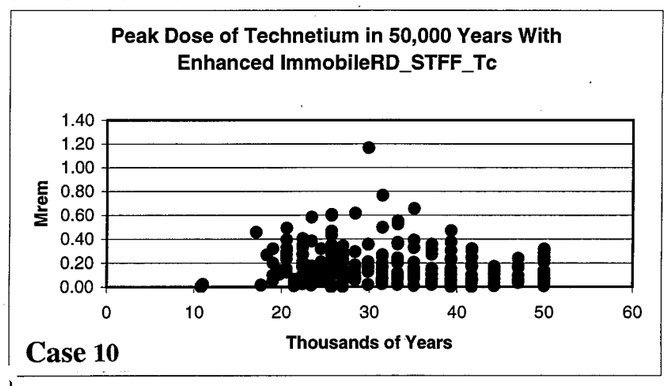
Case 7



Case 8



Case 9



Case 10

I have reviewed this scientific notebook and find it in agreement with QAP-001. There is sufficient information regarding methods used for conducting tests, acquiring and analyzing data so that another qualified individual could repeat the activity.

E. C. Penn

4/3/2001

ADDITIONAL INFORMATION FOR SCIENTIFIC NOTEBOOK #: 374

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