## Alicia Mullins

**From:** Paul Bertetti
**Sent:** Friday, March 18, 2005 11:04 AM
**To:** Jude Mcmurry
**Cc:** John Bradbury
**Subject:** Tpa.inp mods
**Attachments:** AppendixA_Arlt_Bertetti_Mods_Final.xls

Jude,

Here is my final draft spreadsheet for the PA folks. Changes (or final values) are highlighted in light blue. Based on Chris Grossman's discussion with Tim McCartin, I have selected the mean (or expected) values for the "minor" nuclides (Cm, Ra, Cs, Ni, Pb, Se, and Nb). I will note that I have only included final changes for those parameters that I have listed as assigned to me. In the cases where I recommended a change of assignment to you, I have removed my recommended values (but I have kept my comments in all cases). Also note that I would recommend that you be assigned the grain density values for the UZ layers (I have kept my recommended values in these cases for your convenience).

Some important points: The pH and CO2 distributions are not finished. I hope to have them on Monday. Many alluvium distribution types for Pb, Ni, etc. have been changed to constants. Retardation values for Se are lower in general, while most others are in the same range or higher than in TPA 4/5.0. An exception is Pb in the alluvium, which has a final Rf lower than its previous distribution.

Let me know what you think.

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments | |
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| Independent variable: LogCO2PartialPressure_AllUZ_SZLayers[atm]<br><br>Dependent variable: pH_AllUZ_SZLayers[StandardUnits] | UZFT | correlateinputs | -0.83 | Perfect et al (1995) compilation of geochemical data (field pH) screened using criteria in Turner and Pabalan (1999), and log Pco2 caluclated using MINTEQA2, version 3.11 (Turner and Pabalan, 1999). See additional information | DRT | CORR | 2101 | Bertetti McMurry | -0.95 | Final Value for use in TPA 5.x | Value should have been modified previously by information provided in Bertetti, et al. 2004. | |
| AlluviumMatrixPorosity_SAV | Alluvium effective porosity of Amargosa Valley alluvium | uniform | 1.0e-1, 1.5e-1 | Best estimate of USFIC team; current data source is Walker and Eakin (1963) and Fischer (1992) but new data are expected when the | DF | SZFT | 1440 | | no change | | Only one alluvium field test known at this time. Measured value at 19D1 was 0.10. Current DOE range (SZFT AMR) is truncated normal with min=0.0, mean=0.18, and max=0.30, std dev=0.051 | |
| ImmobileRd_STFF_I | Retardation factor for I in matrix during matrix diffusion | constant | 0.0 | Same as ImmobileRd_STFF_C | DP | SZFT | 1444 | Bertetti | no change | | Experimental evidence (DOE) using I and alluvium shows that sorption not significantly different than zero (e.g., SZFT AMR 2003). No retardation. | |
| ImmobileRd_STFF_Tc | Retardation factor for Tc in matrix during matrix | constant | 0.0 | Same as ImmobileRd_STFF_C | DP | SZFT | 1445 | Bertetti | no change | | Conservative assumption of Kd=zero. Confirmed by DOE and CNWRA experimental results. | |
| ImmobileRd_STFF_Cl | Retardation factor for Cl in matrix during matrix | constant | 0.0 | Same as ImmobileRd_STFF_C | DP | SZFT | 1446 | Bertetti | no change | | Field evidence indicates Cl behaves conservatively (chemically) in the SZ. No retardation. | |
| ImmobileRd_STFF_Cm | Retardation factor for Cm in matrix during matrix diffusion | constant | 18000.0 | Reversible not used any more; constant value selected based on analogy betwwen Cm 3+ and Am3+ | DP | SZFT | 1447 | Bertetti | 10400 | Using analog with Am3+. Maintain as constant. Mean value used. Use U0100 (2001) and RT Ambient AMR (2003) distribution for devitrified tuff in UZ because differences in SZFT (2003) distributions STFF and UZ layers for Am not well justified. Devirtified distribution 0.1 to 2.1 uniform, mean=1.05. Conversion using 9880 factor gives Rf of 10374. | Can use Am values based on analogy (see Column E). Current DOE values for SZ STFF for Am are 1.0 to 10.0 with truncated normal distribution (mean=5.5, stdev=1.5) in m3/kg (SZFT 2003). UZ values (RT Ambient AMR 2003) are order of magnitude lower with cumulative distribution 0.10=0%, 0.40=50%, 1.0=100%. Numbers are supposedly based on same source material (attachment I analysis). Current NRC TPA range is more similar to higher DOE range. Assuming | Recall that STFF grain density in this table is 2470 kg/m3 (slightly different than DOE mean value of 2420 kg/m3). STFF porosity in this table is 0.20 (DOE mean value is 0.22). These numbers give a bulk density of 1976 kg/m3, and a Kd to Rf conversion factor of 9880. |
| ImmobileRd_STFF_Ra | Retardation factor for Ra in matrix during matrix diffusion | constant | 648.0 | Same as ImmobileRd_STFF_C | DP | SZFT | 1448 | Bertetti | 5400 | Mean value used from SZFT (2003) distribution for STFF. Maintain constant. Consistent with UZ (slightly higher sorption due to enhanced IX in SZ possible). Mean value from SZFT (2003) is 0.55 m3/kg. Conversion using 9880 factor gives Rf of 5434. | DRT recommends use of current DOE values. U0100 (2001) has range 0.1 to 0.5 uniform. Site-scale SZ transport AMR (2003) has 0.1 to 1 m3/kg, uniform (equivalent to 9.88e2 to 9.88e3 for retardation factor assuming rho=1976 and porosity=0.2. Note thatDOE Ra Kds in UZ for devitrified units are the same, zeolitic higher, vitric | Recall that STFF grain density in this table is 2470 kg/m3 (slightly different than DOE mean value of 2420 kg/m3). STFF porosity in this table is 0.20 (DOE mean value is 0.22). These numbers give a bulk density of 1976 kg/m3, and a Kd to Rf conversion factor of 9880. |
| ImmobileRd_STFF_Pb | Retardation factor for Pb in matrix during matrix diffusion | constant | 648.0 | Same as ImmobileRd_STFF_C | DP | SZFT | 1449 | Bertetti | 3000 | Maintain constant. Use value from U0100 (2001) for devitrified tuff in SZ. Mean is 0.3 m3/kg. Conversion using 9880 gives Rf of 2964. Rounded to 3000. | DOE does not have Pb values in recent AMRs. U0100 values from 2001 show Pb Kds in SZ ranging from 0.1 to 0.5 m3/kg, uniform. That would correspond to 988 to 4940 for Rf assuming rho=1976 and porosity=0.20. No differences | |
| ImmobileRd_STFF_Cs | Retardation factor for Cs in matrix during matrix diffusion | constant | 1080.0 | Same as ImmobileRd_STFF_C | DP | SZFT | 1450 | Bertetti | 7200 | Maintain constant. Use values from SZFT (2003) for alluvium as there should be little difference between alluvium and devitrified tuff for Cs retention. Mean value is 0.728 m3/kg (from a truncated normal, not uniform). Conversion using 9880 factor gives Rf of 7193. rounded to 7200. | DOE's values for Cs sorption are all over the board and not particularly well justified. Somehow, a piecewise distribution of 0.1=0%, 3.7=5%, and 7.5=100% is derived from the Attachment I discussion in Site Scale SZFT AMR 2003. There is no clear link to these values. The range for alluvium (assuming devitrified characteristics) is 0.1 to 1 m3/kg. The vitric values in U0100 are an order of magnitude lower at 0.01 to 0.1 m3/kg. Even though substantial Cs sorption is likely, I would recommend a more conservative range - so I choose the | |
| ImmobileRd_STFF_Ni | Retardation factor for Ni in matrix during matrix diffusion | constant | 216.0 | Same as ImmobileRd_STFF_C | DP | SZFT | 1451 | Bertetti | 990 | Use U0100 (2001) values for devitrified tuff in SZ. Mean value is 0.1 m3/kg. Maintain constant. Conversion using 9880 factor gives Rf of 988. Rounded to 990. | Ni does not appear in recent DOE models. U0100 has Kd values of 0 to 0.05 for vitric, and 0 to 0.2 for devitrified/zeol (m3/kg). For STFF, devitrified is reasonable. Rfs would be 1 to 1.98e3, (uniform ditribution). (assuming rho=1976 and porosity=0.2). | |
| ImmobileRd_STFF_Se | Retardation factor for Se in matrix during matrix diffusion | constant | 65.0 | Same as ImmobileRd_STFF_C | DP | SZFT | 1453 | Bertetti | 2 | Se has low Rf. Use U0100 (2001) values for Se Kd on devitrified tuff in SZ. Expected value from beta distribution is 0.0001 m3/kg. Conversion using 9880 factor gives Rf of 0.988 + 1 (need to add 1 in this | Like Ni and Pb, Se does not appear in recent DOE SZ models. Using U0100 from 2001, Se values in the SZ range from 0 to 0.001 m3/kg (beta exp distribution, expected value=0.0001 and stdev=0.0001). Rfs would be 1 to 9.88, beta exponential, expected value 0.988, stdev=0.988. | |

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| ImmobileRd_STFF_Nb | Retardation factor for Nb in matrix during matrix diffusion | constant | 2160.0 | Same as ImmobileRd_STFF_C | DP | SZFT | 1454 | Bertetti | **10400** | Using analog with Am3+. Maintain as constant. Mean value used. Use U0100 (2001) and RT Ambient AMR (2003) distribution for devitrified tuff in UZ because differences in SZFT (2003) distributions STFF and UZ layers for Am not well justified. Devirtified distribution 0.1 to 2.1 uniform, mean=1.05. Conversion using 9880 factor gives Rf of 10374. | Can use Am values based on analogy (see Column E). Current DOE values for SZ STFF for Am are 1.0 to 10.0 with truncated normal distribution (mean=5.5, stdev=1.5) in m3/kg (SZFT 2003). UZ values (RT Ambient AMR 2003) are order of magnitude lower with cumulative distribution 0.10=0%, 0.40=50%, 1.0=100%. Numbers are supposedly based on same source material (attachment I analysis). Current NRC TPA range is more similar to higher DOE range. Assuming | |
| SZFractureForceFactorForKdToRd | SZFFFFKTR=0.->Rd=1., else | constant | 0.0 | Program control switch to investigate retardation effects | DT | SZFT | 1401 | Bertetti | **no change** | | | |
| FractureRD_STFF_I | Fracture retardation coefficient of tuff for I | constant | 1.0 | | DT | SZFT | 1409 | Bertetti | **no change** | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. | |
| AlluviumMatrixRD_SAV_I | Alluvium retardation coefficient for I (SZ) | constant | 1.0 | Consistent with low Kd values (Kd,I = 1) for different soil types (Sheppard and Thibault, 1990); see | DT | SZFT | 1410 | Bertetti | **no change** | | Experimental evidence (DOE) using I and alluvium shows that sorption not significantly different than zero (e.g., SZFT AMR 2003). No retardation. | |
| FractureRD_STFF_Tc | Fracture retardation coefficient of tuff for Tc | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1411 | Bertetti | **no change** | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. | |
| AlluviumMatrixRD_SAV_Tc | Alluvium retardation coefficient for Tc (SZ) | constant | 1.0 | Assumed bounding value for transport fo anionic species (TcO4-) in oxidizing environment. Consistent with low kd vlues (kd,Tc = 0.1) reported in Sheppard | DT | SZFT | 1412 | Bertetti | **no change** | | Conservative assumption of Kd=zero. Confirmed by DOE and CNWRA experimental results. | |
| FractureRD_STFF_Cl | Fracture retardation coefficient of tuff for Cl | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1413 | Bertetti | **no change** | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. | |
| AlluviumMatrixRD_SAV_Cl | Alluvium retardation coefficient for Cl (SZ) | constant | 1.0 | Same as AlluviumMatrixRD_SAV_C | DT | SZFT | 1414 | Bertetti | **no change** | | Field evidence indicates Cl behaves conservatively (chemically) in the SZ. No retardation. | |
| FractureRD_STFF_Cm | Fracture retardation coefficient of tuff for Cm | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1415 | Bertetti | **no change** | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. | |
| AlluviumMatrixRD_SAV_Cm | Alluvium retardation coefficient for Cm (SZ) | constant | 7.5e4 | Assumed equal to the lower bound for the Am alluvium Rd. Value based on analogy between trivalent species Cm3+ and Am3+. The lower bound for Am does not represent uncertainty but is likely to be a conservative bound [ALOG] | DT | SZFT | 1416 | Bertetti | **35800** | Use SZFT (2003) values for alluvium. Keep as constant. Mean of 5.5 m3/kg converts to Rf of 35750 using factor of 6500. Rounded to 35800. | Can use Am values based on analogy of trivalent species. Current DOE values for SZ alluvium for Am are 1.0 to 10.0 with truncated normal distribution (mean=5.5, stdev=1.5) in m3/kg (SZFT 2003). UZ values (RT Ambient AMR 2003) are order of magnitude lower wit cumulative distribution 0.10=0%, 0.40=50%, 1.0=100%. Numbers are supposedly based on same source material (attachment I analysis). Current NRC TPA range is | Recall alluvium porosity ranges from 0.15 to 0.30 and alluvium grain density is about 2520 kg/m3. To calculate Rf from Kd one should use bulk density and porosity. Bulk density would range from about 1764 to 2142 with an average about 1950. Porosity would be conservatively set at 0.30, giving a factor of 6500 for conversion from kd in m3/kg to Rf (ignoring addition of a constant of 1 for large values). |
| FractureRD_STFF_Ra | Fracture retardation coefficient of tuff for Ra | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1417 | Bertetti | **no change** | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. | |
| AlluviumMatrixRD_SAV_Ra | Alluvium retardation coefficient for Ra (SZ) | loguniform | 2.0e3, 8.0e3 | Same as AlluviumMatrixRD_SAV_Nb | DT | SZFT | 1418 | Bertetti | **3580** | Use SZFT (2003) values for alluvium. **Convert to constant** expected value. Mean is 0.55 m3/kg, which converts to Rf of 3575 using factor of 6500. Rounded to 3580. | DRT recommends use of current DOE values. U0100 (2001) has range 0.1 to 0.5 uniform. Site-scale SZ transport AMR (2003) has 0.1 to 1 m3/kg, uniform (equivalent to 6.5e2 to 6.5e3 for retardation factor assuming rho=1950 and porosity=0.3. Note thatDOE Ra Kds in UZ and SZ are different, not sure | |
| FractureRD_STFF_Pb | Fracture retardation coefficient of tuff for Pb | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1419 | Bertetti | **no change** | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. | |
| AlluviumMatrixRD_SAV_Pb | Alluvium retardation coefficient for Pb (SZ) | loguniform | 2.0e3, 8.0e3 | Same as AlluviumMatrixRD_SAV_Nb | DT | SZFT | 1420 | Bertetti | **1950** | Use U0100 (2001) values for devitrified tuff in SZ. **Convert to constant** expected value. Mean is 0.3 m3/kg, which converts to Rf of | DOE does not have Pb values in recent AMRs. U0100 values from 2001 show Pb Kds in SZ ranging from 0.1 to 0.5 m3/kg, uniform. That would correspond to 650 to 3250 for Rf assuming | |
| FractureRD_STFF_Cs | Fracture retardation coefficient of tuff for Cs | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1421 | Bertetti | **no change** | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. | |
| AlluviumMatrixRD_SAV_Cs | Alluvium retardation coefficient for Cs (SZ) | loguniform | 200.0, 2000.0 | | DT | SZFT | 1422 | Bertetti | **4730** | **Convert to constant.** Use values from SZFT (2003) for alluvium. Mean value is 0.728 m3/kg (from a truncated normal, not uniform). Conversion using 6500 factor gives Rf of 4732. Rounded to 4730. | DOE has all kinds of Cs Kds for SZ and UZ. Currently for the alluvium (SZFT 2003) DPE has 0.1 to 1.0 m3/kg, truncated normal with mean=0.728 and stdev=0.464 m3/kg. That corresponds to Rfs of 6.5e2 to 6.5e3 with mean approx. 4.73e3 and stdev approx 3e3. (using rho=1950 and porosity=0.30) | |
| FractureRD_STFF_Ni | Fracture retardation coefficient of tuff for Ni | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1423 | Bertetti | **no change** | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. | |

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| AlluviumMatrixRD_SAV_Ni | Alluvium retardation coefficient for Ni (SZ) | beta | 1.0, 4000.0, 6.502, 19.525 | Data from Triay et al. (1997); justification for PDF in DOE/NRC agreement RT-2.10 [OBS, EXP] | DT | SZFT | 1424 | Bertetti | 650 | **Convert to constant.** Use values from U0100 (2001) for devitrified tuff in the SZ. Mean is 0.1 m3/kg which converst to Rf of 650 using 6500 factor. No rounding. | DOE does not have Ni values in recent AMRs. U0100 values from 2001 show Ni Kds in the SZ ranging from 0 to 0.05 m3/kg for vitric and 0 to 0.2 for devit/zeol (uniform distribution). Again, we assume devitrified tuff similar to alluvium and STFF, giving an Rf range of 1 to 1300 using rho-1950 and |
| FractureRD_STFF_C | Fracture retardation coefficient of tuff for C | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1425 | Bertetti | no change | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. |
| AlluviumMatrixRD_SAV_C | Alluvium retardation coefficient for C (SZ) | constant | 1.0 | Assumed no fracture retardation of anionic species (Cl-, HCO3-, CO32-) which is consistent with the low Kd reported for carbon in Sheppard and Thibault(1990). The Cl value is | DT | SZFT | 1426 | Bertetti | no change | | Assume no retardation for C in UZ or SZ. C is subject to more exchange and sorption reactions than other anions (such as Tc) but assumption is conservative. |
| FractureRD_STFF_Se | Fracture retardation coefficient of tuff for Se | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1427 | Bertetti | no change | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. |
| AlluviumMatrixRD_SAV_Se | Alluvium retardation coefficient for Se (SZ) | beta | 1.0, 300.0, 1.618, 10.79 | Same as AlluviumMatrixRD_SAV_Ni | DT | SZFT | 1428 | Bertetti | 2 | **Convert to constant.** Se has low Rf. Use U0100 (2001) values for Se Kd on devitrified tuff in SZ. Expected value from beta distribution is 0.0001 m3/kg. Conversion using 6500 factor gives Rf of 0.65 + 1 (need to add 1 in this case because Rf is low. Note that | Like Ni and Pb, Se does not appear in recent DOE SZ models. Using U0100 from 2001, Se values in the SZ range from 0 to 0.001 m3/kg (beta exp distribution, expected value=0.0001 and stdev=0.0001). Rfs would be 1 to 6.5, beta exponential, expected value 0.65, stdev=0.65. |
| FractureRD_STFF_Nb | Fracture retardation coefficient of tuff for Nb | constant | 1.0 | Same as FractureRD_STFF_Am | DT | SZFT | 1429 | Bertetti | no change | | Assume no retardation in fractures for UZ and SZ. All layers, all nuclides. |
| AlluviumMatrixRD_SAV_Nb | Alluvium retardation coefficient for Nb (SZ) | loguniform | 2.0e3, 3.0e4 | Data from Triay et al. (1997); uses more conservative PDFdocumented in DOE/NRC agreement RT-2.10 [OBS, EXP] | DT | SZFT | 1430 | Bertetti | 35800 | Use SZFT (2003) values for alluvium. **Convert to constant**. Mean of 5.5 m3/kg converts to Rf of 35750 using factor of 6500. Rounded to 35800. | Can use Am values based on analogy of trivalent species. Current DOE values for SZ alluvium for Am are 1.0 to 10.0 with truncated normal distribution (mean=5.5, stdev=1.5) in m3/kg (SZFT 2003). UZ values (RT Ambient AMR 2003) are order of magnitude lower wit cumulative distribution 0.10=0%, 0.40=50%, 1.0=100%. Numbers are supposedly based on same source material (attachment I analysis). Current NRC TPA range is |
| ImmobilePorosityPenetrationFraction_STFF | Effective fraction of saturated rock matrix accessible to matrix diffusion during the time scale for transport from source to receptor, used to calculate effective immobile porosity and the matrix diffusion mass | loguniform | 0.01, 0.1 | Distribution based on CNWRA best estimates (see Mohanty et al. 2000, Chapter 10) [OBS] | JW | SZFT | 1402 | | | | |
| MixingZoneDispersionFraction | Dispersion fraction of the mixing zone (SZ) - longitudinal dispersion specified as a fraction of the path length | constant | 0.01 | Constant used as uncertainty effects are expected to be larger for effective porosity and groundwater flux. CNWRA best estimate and assumed to be conservative; | JW | SZFT | 1404 | | | | |
| DispersionFraction_STFF | Dispersion fraction of tuff (SZ) - longitudinal dispersion specified as a fraction of the path | constant | 0.1 | Same as MixingZoneDispersionFraction | JW | SZFT | 1405 | | | | |
| DispersionFraction_SAV | Dispersion fraction of Amargosa Valley (SZ) - longitudinal dispersion specified as a fraction of the path length | constant | 0.1 | Data taken from de Marsily (1986) citing work of Lallemand-Barrés and Peaudcerf (1978) | JW | SZFT | 1406 | | | | |
| FracturePorosity_STFF | Effective fracture porosity of the saturated tuff (i.e. volume fraction through which the bulk of flow occurs) | loguniform | 1.0e-3, 1.0e-2 | Based on CNWRA best estimates (see CNWRA Letter from Farrell et al. (2000) and Mohanty et al. (2000, Chapter 10)) [EXP] | JW | SZFT | 1437 | | | | |

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| AlluviumMatrixGrainDensity_SAV[kg/m3] | | constant | 2650.0 | Constant specified because the range of feasible values and there effects are small; value is consistent with typical bulk densities which are not that variable in nature [EXP, ALOG, REL] | JW | SZFT | 1439 | Bertetti | **2520.0** | DOE measures average grain density for alluvium as 2520 kg/m3 (SZFT AMR 2003). Variation is small: 2490 to 2550. Recommend changing to constant of 2520 kg/m3. | Matrix grain densities used to calculate Rd from Kds for all layers, and with exception of alluvium, used for SA calculation as well. Because of the way Kd and Rd are calculated, these densities algebraically cancel out for all layers except alluvium. DOE measures average grain density for alluvium as 2520 kg/m3 (SZFT AMR 2003). Variation is small: 2490 to 2550. Recommend changing to constant of |
| ImmobileRd_STFF_C | Retardation factor for C in matrix during matrix diffusion | constant | 0.0 | Reversible not used any more; data from Triay et al. (19970 | JW | SZFT | 1452 | Bertetti | **no change** | | Assume no retardation for C in UZ or SZ. C is subject to more exchange and sorption reactions than other anions (such as Tc) but assumption is |
| ImmobileGrainDensity_STFF[kg/m3] | | constant | 2470.0 | Constant value because the parameter value is well known and has a very small range (Freeze and Cherry, 1979). | JW | SZFT | 1455 | Bertetti | **no change** | | Grain density values cancel out during internal TPA calculations (see alluvium density discussion). Also, bulk density should be used for SA calculations. Recent DOE data (SZFT AMR 2003) indicate that avergae grain density of layers that would make up STFF are not significantly different from 2470 kg/m3 to warrant a change. DOE mean is 2420 kg/m3 (bulk |
| ImmobilePorosity_STFF | Matrix porosity in saturated tuff | constant | 0.2 | CNWRA best estimate, considering uncertainty in pore velocity and effective diffusion rates (see Chapter 10 of Mohanty et al. 2000). Constant value based on the observation that performance is not | JW | SZFT | 1456 | | **no change** | | Average matrix porosity used by DOE in SZFT AMR 2003 is 0.22. A small range is evident but not likely to have significant effects as noted by JW previously. |
| ImmobilePoreRadius_STFF[m] | | constant | 5.0e-8 | No information | JW | SZFT | 1457 | Bertetti | **no change** | | same discussion as for BFw and UZFT units |
| DiffusionRate_STFF | Effective diffusion coefficient in saturated | uniform | 1.0e-4, 1.0e-2 | Diffusion coefficient reported for TCO4 anion by Triay et al. (1997); | JW | SZFT | 1458 | | | | |
| DistanceToTuffAlluviumInterface[km] | Distance to tuff alluvium interface | uniform | 12.0, 17.0 | Data and rational draws from site characterization studies by Sims et al. (1999) and Winterle (2002) Maximum limit of 17.0 to | JW | SZFT | 1459 | | | | |
| StreamTubeWidthMultiplier[] | accounts for uncertainties in groundwater flux and | uniform | 0.5, 2.0 | Best estimate based on experience from groundwater flow modeling; accounts for uncertainties in | JW | SZFT | 1460 | | | | |
| SZFluxMultiplierAtGlacialMaximum[] | None | constant | 1.0 | No information | JW | SZFT | 1462 | | | | |
| AlluviumTotalPorosity_SAV | Used for calculating retardation factor for radionuclides in the saturated alluvium layer. | uniform | 0.15, 0.3 | Range based on measured values from Fortymile Wash. | PB | SZFT | 1441 | | **no change** | | Range based on data from a number of sources DOE, NYE and CNWRA. Additonal documentation required but no value change need at this time. |
| AlluviumMatrixSpecificSurfaceArea | Used for calculating retardation factor for radionuclides in the saturated alluvium layer. | uniform | 1.9e3, 1.21e4 | Range based on sonic core samples from Fortymile Wash. | PB | SZFT | 1442 | | **0.9e3 to 3.1e3, uniform** | | Previous range based on analysis of surface area data from Fortymile Wash wells (Bertetti et al 2004) and used mesopore and micropore analysis (BET method) to attempt to differentiate between clay and non-caly mineral contribution. Subsequent statistical analyses and experimental eveidence suggests 10% effective range should be applied with little or no contribution form other minerals. New range |
| AlluviumMatrixPoreRadius_SAV[m] | | constant | 5.0e-8 | No information | PB | SZFT | 1443 | | **remove** | | Obsolete parameter, replaced by Alluvium Matrix Specific Surface Area |
| FractureAperture_STFF[m] | | constant | 1.0e-4 | | RF | SZFT | 1438 | Bertetti | **no change** | | Should remain consistent with values used for equivalent layers in UZFT. |
| MinimumResidenceTime_STFF[yr] | Minimum residence time in tuff (SZ) (yr) | constant | 10.0 | Value selected for code efficiency reasons. Underlying model is very sensitive to coutiguous leg velocity | RWJ | SZFT | 1407 | | | | |
| MinimumResidenceTime_SAV[yr] | Minimum residence time in alluvium (SZ) (yr) | constant | 100.0 | Value selected for code efficiency reasons [EXP] | RWJ | SZFT | 1408 | | | | |
| SaturatedZoneMinimumVelocityChangeFactor[Fraction] | control 3 of entries for nevtran velocity file for saturated zone | constant | 0.1 | Value selected for code efficiency reasons. Model very sensitive to contiguous time step velocity ratios | RWJ | SZFT | 1461 | | | | |
| SurfaceAreaFactor_SAV | None | constant | 590.0 | No information | SP | SZFT | 1431 | | | | |
| SurfaceAreaFactor_STFF | None | constant | 590.0 | No information | SP | SZFT | 1432 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ColloidRetardationFactor_SAV_[m3/kg] | | usersupplied pwisecdf | 20 1.0, 0.0, 1.01, 0.01, 1.5, 0.07, 2.0, 0.12, 4.0, 0.22, 6.0, 0.29, 8.0, 0.33, 14.4, 0.4, 22.14, 0.45, 34.0, 0.5, 56.15, 0.55, 92.85, 0.6, 153.5, 0.65, 253.9, 0.7, | Best available information from ANL-NBS-HS-000031 Rev 1, Table 8. Linearly interpolated in Log space between tabulated values. . | SP | SZFT | 1433 | | | | |
| ColloidRetardationFactor_STFF[m3/kg] | | usersupplied pwisecdf | 15 1.0, 0.0, 1.01, 0.01, 1.5, 0.04, 2.0, 0.06, 4.0, 0.12, 6.0, 0.15, 10.23, 0.25, 14.86, 0.35, 26.0, 0.5, 34.35, 0.6, 45.39, | Best available information from ANL-NBS-HS-000031 Rev 1, Table 7. Linearly interpolated in Log space between tabulated values. . | SP | SZFT | 1434 | | | | |
| ColloidConcentration_SAV_[kg/m3] | | usersupplied pwisecdf | 16 1.0e-6, 0.0, 2.51e-6, 0.1, 6.31e-6, 0.2, 1.58e-5, 0.3, 3.98e-5, 0.4 1.0e-4, 0.5, 2.51e-4, 0.6, 6.31e-4, 0.7, 1.0e3, 0.75, | see SCR #484 for description and references | SP | SZFT | 1435 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ColloidConcentration_STFF[kg/m3] | | usersupplied pwisecdf | 16 1.0e-6, 0.0, 2.51e-6, 0.1, 6.31e-6, 0.2, 1.58e-5, 0.3, 3.98e-5, 0.4 1.0e-4, 0.5, 2.51e-4, 0.6, 6.31e-4, 0.7, 1.0e 3, 0.75, | "" | SP | SZFT | 1436 | | | | |
| FracturesPerMeter_STFF [1/m] | Effective spacing between transmissive zones in the tuff aquifer, used to calculate the matrix diffusion mass-transfer rate coefficient | constant | 0.05 | CNWRA current best estimate, based on assumed transmissive interval spacing of 20 m (see Winterle et al., 2000) [EXP] | TM | SZFT | 1403 | | | | |
| ** SZFT | | | | | | SZFT | 1400 | | | | |
| UZFLOWSampleMode | Flag for choosing method for estimating net infiltration using data from maydtbl.dat or smaydtbl.dat. | iconstant | 1 | Program control writch; for value=1, the mean values of net infiltration from maydtbl.dat, when aggegated for each subarea, are scaled to the sampled value for ArealAverageMeanAnnualInfiltrationAtStart[mm/yr]. For value=2, the | RF | UZFLOW | 101 | | | | |
| ArealAverageMeanAnnualInfiltrationAtStart[mm/yr] | Aerially averaged mean annual infiltration (mm/yr) for the initial (modern) climate for the | uniform | 4.0, 13.0 | Based on best estimate by USFIC staff (EXP) from documentation in Winterle et al. (1999a,b) | RF | UZFLOW | 102 | | | | |
| UZFLOWHydraulicPropertyUncertaintyDeviation[N(0,1)] | None | normal | -3.0857, 3.0857 | No information | RF | UZFLOW | 103 | | | | |
| MeanAnnualPrecipitationMultiplierAtGlacialMaximum | Mean annual precipitation multiplier at glacial maximum | uniform | 2.0, 3.0 | Based on studies of the USFIC (OBS, ALOG) documented in NRC (1997, 1999). Revisions (possibly including correlations with temperature), might follow the | RF | UZFLOW | 104 | | | | |
| MeanAnnualTemperatureIncreaseAtGlacialMaximum[degC] | Mean average temperature (MAT) increase at glacial maximum (oC) | uniform | -10.0, -5.0 | Based on studies of the USFIC (OBS, ALOG) documented in NRC (1997). Revisions (possibly including correlations with temperature), might follow the | RF | UZFLOW | 105 | | | | |
| AnnualInfiltrationLossMode(0=Loss,1=LossCalculated) | Flag that allows UZFLOW net infiltration module to be bypassed and precipitation rate to be used as percolation rate. | iconstant | 1 | Program control parameter used to allow net infiltration barrier to be bypassed for importance analysis. Value of 0 uses precipitation over a subarea as an estimate of percolation. Value of 1 passes the | RF | UZFLOW | 106 | | | | |
| TimeStepForClimate[yr] | Time step used in the climate model | constant | 500.0 | Based on USFIC staff expert judgement for use of 500-yr climate steps to represent continuous function in climato2.dat for creating input to net infiltration, also factors in efficiency of the TPA Version 4.0 code. Used in conjunction with climato2.dat; constant value is | RF | UZFLOW | 107 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| StandardDeviationOfMAPAboutMeanInOneTimePeriod[mm/yr] | Standard deviation of mean annual precipitation about mean in one time period (mm/yr) | constant | 0.0 | Artificial value that eliminates variations in the mean annual precipitation, and hence removes the effect of this parameter and mean annual temperature, based on USFIC expert judgement that | RF | UZFLOW | 108 | | | | |
| StandardDeviationOfMATAboutMeanInOneTimePeriod[degC] | Standard deviation of mean annual temperature about mean in one time period (oC) | constant | 0.0 | Artificial value that eliminates variations in the mean annual temperature, and hence removes the effect of this parameter and mean annual temperature, based on USFIC expert judgement that | RF | UZFLOW | 109 | | | | |
| CorrelationBetweenMAPAndMAT | Correlation between MAP and MAT | constant | -0.8 | Parameter effectively not used because MAP and MAT are both constant; however the value is a best estimate of the UFIC team (EXP) drawing from climate expert | RF | UZFLOW | 110 | | | | |
| ClimatePerturbationSet | Value identifies portion of climato1.dat file to use | iconstant | 1 | Program control parameter used to specify which part of climato1.dat is to be used for climate perturbations | RF | UZFLOW | 111 | | | | |
| **UZFLOW | | | | | | UZFLO | 100 | | | | |
| MatrixPoreRadius_TSw_[m] | .. | constant | 5.0e-8 | Same as MatrixPoreRadius_BFw_[m] | DD | UZFT | 1196 | McMurry | no change | | TSw values consistent with median of 5 e-8. |
| MatrixPoreRadius_CHnv[m] | same description as MatrixPoreRadius_TSw | constant | 5.0e-8 | Same as MatrixPoreRadius_BFw_[m] | DD | UZFT | 1197 | McMurry | no change | | Median value closer to 4.5 e-7 for CHnv. |
| MatrixPoreRadius_CHnz[m] | same description as MatrixPoreRadius_TSw | constant | 5.0e-8 | Same as MatrixPoreRadius_BFw_[m] | DD | UZFT | 1198 | McMurry | no change | | Median value about 5 e-8 for CHz, but a much broader distribtion than TSw. |
| MatrixPoreRadius_PPw_[m] | same description as MatrixPoreRadius_TSw_[m] | constant | 5.0e-8 | Same as MatrixPoreRadius_BFw_[m] | DD | UZFT | 1199 | McMurry | no change | | Some units have 96% pores less than 5 e-8 while others have only 16% pores less than 5 e-8. Average for PPw is 53% less than 5 e-8. |
| MatrixPoreRadius_UCF_[m] | same description as MatrixPoreRadius_TSw | constant | 5.0e-8 | Same as MatrixPoreRadius_BFw_[m] | DD | UZFT | 1200 | McMurry | no change | | No DOE information on UCF assume same as for BFw |
| MatrixPoreRadius_BFw_[m] | same description as MatrixPoreRadius_TSw_[m] | constant | 5.0e-8 | Based on moisture retention curves used by DOE; consistent with TPA model where sorption occurs only in matrix. Previous value (5E-8) based on work by Travis and Nuttall (1987) should be updated to inlucde the pore size distribution in CRWMS M&O (2000) [OBS] | DD | UZFT | 1201 | McMurry | no change | | Pore radius is used along with porosity and density to calculate surface area for each hydrostratigraphic layer. Review of the Particle Tracking AMRs (2000 and 2004) show a more complex distribution of pore sizes but a general agreement with the 5e-8 m value. To minmize surface area uncertainties the 5 e-8 value should be retained until addtiional analyses can be completed. Example distributions are |
| MatrixPoreRadius_UFZ_[m] | same description as MatrixPoreRadius_TSw | constant | 5.0e-8 | Same as MatrixPoreRadius_BFw_[m] | DD | UZFT | 1202 | McMurry | no change | | No information about this unit. |
| PermanentLossColloidFilterFactor_TSw_[] | Fraction of irreversible colloids permamently removed when matrix flow occurs in the | constant | 0.65 | Same as PermanentLossColloidFilterFactor_BFw_[] | DP | UZFT | 1084 | | | | |
| PermanentLossColloidFilterFactor_CHnv[] | | constant | 0.5 | Same as PermanentLossColloidFilterFactor_ | DP | UZFT | 1085 | | | | |
| PermanentLossColloidFilterFactor_CHnz[] | | constant | 0.57 | Same as PermanentLossColloidFilterFactor_ | DP | UZFT | 1086 | | | | |
| PermanentLossColloidFilterFactor_PPw_[] | | constant | 0.19 | Same as PermanentLossColloidFilterFactor_ | DP | UZFT | 1087 | | | | |
| PermanentLossColloidFilterFactor_UCF_[] | | constant | 0.25 | Same as PermanentLossColloidFilterFactor_ | DP | UZFT | 1088 | | | | |
| PermanentLossColloidFilterFactor_BFw_[] | | constant | 0.18 | Data derivation given in Notebook 133, pp. 67-70 (D. Pickett). Uncertainties are very difficult to | DP | UZFT | 1089 | | | | |
| PermanentLossColloidFilterFactor_UFZ_[] | | constant | 0.0 | Same as PermanentLossColloidFilterFactor_ | DP | UZFT | 1090 | | | | |
| UZFractureForceFactorForKdtoRd | UZFFFFKTR=0.->Rd=1., else | constant | 0.0 | Program control switch used to investigate retardation effects | DT | UZFT | 1004 | | | | |
| MatrixKD_TSw_I[m3/kg] | Matrix Kd of I for Topopah Spring- | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1007 | McMurry | no change | | No significant retardation for I in UZ or SZ. |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MatrixKD_CHnvI[m3/kg] | Matrix Kd of I for Calico Hills—nonwelded vitric [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1008 | McMurry | no change | | No significant retardation for I in UZ or SZ. | |
| MatrixKD_CHnzI[m3/kg] | Matrix Kd of I for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1009 | McMurry | no change | | No significant retardation for I in UZ or SZ. | |
| MatrixKD_PPw_I[m3/kg] | Matrix Kd of I for Prow Pass-welded[m3/kg] | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1010 | McMurry | no change | | No significant retardation for I in UZ or SZ. | |
| MatrixKD_UCF_I[m3/kg] | Matrix Kd of I for Upper Crater Flat[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1011 | McMurry | no change | | No significant retardation for I in UZ or SZ. | |
| MatrixKD_BFw_I[m3/kg] | Matrix Kd of I for Bullfrog—welded [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1012 | McMurry | no change | | No significant retardation for I in UZ or SZ. | |
| MatrixKD_UFZ_I[m3/kg] | Matrix Kd of I for Unsaturated Fracture Zone[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1013 | McMurry | no change | | No significant retardation for I in UZ or SZ. | |
| MatrixKD_TSw_Tc[m3/kg] | Matrix Kd of Tc for Topopah Spring- | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1014 | McMurry | no change | | Assume no retardation for Tc in the UZ and SZ. Consistent with expeirmental evidence. | |
| MatrixKD_CHnvTc[m3/kg] | Matrix Kd of Tc for Calico Hills—nonwelded vitric [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1015 | McMurry | no change | | Assume no retardation for Tc in the UZ and SZ. Consistent with expeirmental evidence. | |
| MatrixKD_CHnzTc[m3/kg] | Matrix Kd of Tc for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1016 | McMurry | no change | | Assume no retardation for Tc in the UZ and SZ. Consistent with expeirmental evidence. | |
| MatrixKD_PPw_Tc[m3/kg] | Matrix Kd of Tc for Prow Pass-welded[m3/kg] | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1017 | McMurry | no change | | Assume no retardation for Tc in the UZ and SZ. Consistent with expeirmental evidence. | |
| MatrixKD_UCF_Tc[m3/kg] | Matrix Kd of Tc for Upper Crater Flat[m3/kg] | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1018 | McMurry | no change | | Assume no retardation for Tc in the UZ and SZ. Consistent with expeirmental evidence. | |
| MatrixKD_BFw_Tc[m3/kg] | Matrix Kd of Tc for Bullfrog—welded [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1019 | McMurry | no change | | Assume no retardation for Tc in the UZ and SZ. Consistent with expeirmental evidence. | |
| MatrixKD_UFZ_Tc[m3/kg] | Matrix Kd of Tc for Unsaturated Fracture Zone[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1020 | McMurry | no change | | Assume no retardation for Tc in the UZ and SZ. Consistent with expeirmental evidence. | |
| MatrixKD_TSw_Cl[m3/kg] | Matrix Kd of Cl for Topopah Spring- | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1021 | McMurry | no change | | Cl behaves conservatively in UZ and SZ. Consistent with geochemical field evidence. | |
| MatrixKD_CHnvCl[m3/kg] | Matrix Kd of Cl for Calico Hills—nonwelded vitric [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1022 | McMurry | no change | | Cl behaves conservatively in UZ and SZ. Consistent with geochemical field evidence. | |
| MatrixKD_CHnzCl[m3/kg] | Matrix Kd of Cl for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1023 | McMurry | no change | | Cl behaves conservatively in UZ and SZ. Consistent with geochemical field evidence. | |
| MatrixKD_PPw_Cl[m3/kg] | Matrix Kd of Cl for Prow Pass-welded[m3/kg] | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1024 | McMurry | no change | | Cl behaves conservatively in UZ and SZ. Consistent with geochemical field evidence. | |
| MatrixKD_UCF_Cl[m3/kg] | Matrix Kd of Cl for Upper Crater Flat[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1025 | McMurry | no change | | Cl behaves conservatively in UZ and SZ. Consistent with geochemical field evidence. | |
| MatrixKD_BFw_Cl[m3/kg] | Matrix Kd of Cl for Bullfrog—welded [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1026 | McMurry | no change | | Cl behaves conservatively in UZ and SZ. Consistent with geochemical field evidence. | |
| MatrixKD_UFZ_Cl[m3/kg] | Matrix Kd of Cl for Unsaturated Fracture Zone[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1027 | McMurry | no change | | Cl behaves conservatively in UZ and SZ. Consistent with geochemical field evidence. | |
| MatrixKD_TSw_Cm[m3/kg] | Matrix Kd of Cm for Topopah Spring-welded[m3/kg] (UZ) | constant | 0.0 | Use analogy with Am? | DT | UZFT | 1028 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the units that make up the TSw are nearly vitric in nature in the UZ. Thus vitric DOE values are used. Using the trivalent analogy Am Kds are substituted for Cm. The RT Models Under Ambient AMR 2003 has vitric Am Kds of 0.1 to 1.0 m3/kg in a piecewise distribution, with 0.1=0%, 0.4=50%, and 1.0=100%. This has a slightly lower mean than the 0.1 to 1.0 uniform distribution used for zeolitic layers. | DRT recommends using DOE values for various nuclides not considered in the actinide SCM model. DOE provides values for vitric, devitrified, and zeolitic rocks, and SZ/UZ values (that may differ for the same nuclide). So the first effort is to determine which units are vitric, devitrified, or zeolitic. Based on review of AMRs this distinction is not readily traceable (each cell has a value from the mineral model, it appears). Based on my review of the Mineral model AMR, I have designated a rock type for each layer here. If you disagree, change it , justify it, and let us know. |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| MatrixKD_CHnvCm[m3/kg] | Matrix Kd of Cm for Calico Hills—nonwelded vitric [m3/kg] (UZ) | constant | 0.0 | Use analogy with Am? | DT | UZFT | 1029 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded vitric has vitric layer properties with respect to sorption. Using the trivalent analogy Am Kds are substituted for Cm. The RT Models Under Ambient AMR 2003 has vitric Am Kds of 0.1 to 1.0 m3/kg in a piecewise distribution, with 0.1=0%, 0.4=50%, and 1.0=100%. This has a slightly lower mean than the 0.1 to 1.0 |
| MatrixKD_CHnzCm[m3/kg] | Matrix Kd of Cm for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | constant | 0.0 | Use analogy with Am? | DT | UZFT | 1030 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded zeolitic has zeolitic characteristics for sorption. Using the trivalent analogy Am Kds are substituted for Cm. The RTAmbient AMR 2003 has zeolitic Kds for Am |
| MatrixKD_PPw_Cm[m3/kg] | Matrix Kd of Cm for Prow Pass-welded[m3/kg] (UZ) | constant | 0.0 | Use analogy with Am? | DT | UZFT | 1031 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the Prow Pass units have both zeolitic and devitrified characteristics. When a difference in sorption values exists between these two rock types, the lower range will be used arbitrarily. Using the trivalent analogy Am Kds are substituted for Cm. The RTAmbient AMR 2003 has zeolitic Kds for Am ranging from 0.1 to 1.0 m3/kg, uniform. Kds for devit |
| MatrixKD_UCF_Cm[m3/kg] | Matrix Kd of Cm for Upper Crater Flat[m3/kg] (UZ) | constant | 0.0 | Use analogy with Am? | DT | UZFT | 1032 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), UCF is not listed. It may be assumed that undifferentiated Crater Flat tuff would have characteristics of Prow Pass, Bullfrog, and Tram Tuffs, which are dominated by devitrified units but have zeolitic and vitric subunits as well. As before for PPw and BFw, the lower of Kd ranges for zeolitic and devitrified rock type will be used for UCF. Using the trivalent analogy Am Kds are substituted for Cm. The RTAmbient AMR 2003 has zeolitic Kds for Am |
| MatrixKD_BFw_Cm[m3/kg] | Matrix Kd of Cm for Bullfrog—welded [m3/kg] (UZ) | constant | 0.0 | Use analogy with Am? | DT | UZFT | 1033 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), subunits that comprise the BFw have vitric, zeolitic and devitrified characteristics. The unit as a whole appears to have significant devitrified zones. It seems reasonable that the lower Kd value for zeolitic or devitriifed be used for the BFw. Using the trivalent analogy Am Kds are substituted for Cm. The RTAmbient AMR 2003 has zeolitic Kds for Am ranging from 0.1 to 1.0 m3/kg, uniform. Kds for devit |
| MatrixKD_UFZ_Cm[m3/kg] | Matrix Kd of Cm for Unsaturated Fracture Zone[m3/kg] (UZ) | constant | 0.0 | Use analogy with Am? | DT | UZFT | 1034 | McMurry | | | There is no direct information for UFZ in the Mineralogical Model AMR (MM3.0), thus, and assumption of vitric is assumed for this layer/region, since DOE vitric Kds are usually lowest and most conservative. Using the trivalent analogy Am Kds are substituted for Cm. The RTAmbient AMR 2003 has vitric Kds in a user defined distribution with |
| MatrixKD_TSw_Ra[m3/kg] | Matrix Kd of Ra for Topopah Spring-welded[m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_TSw_Cs[m3/kg] | DT | UZFT | 1035 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the units that make up the TSw are nearly vitric in nature in the UZ. Thus vitric DOE values are used. DOE range for Ra in vitric rocks is 0.05 to 0.6 m3/kg, uniform. RT Ambient AMR 2003. |
| MatrixKD_CHnvRa[m3/kg] | Matrix Kd of Ra for Calico Hills—nonwelded vitric [m3/kg] (UZ) | uniform | 0.05, 1.0 | Same as MatrixKD_CHnv_Cs[m3/kg] | DT | UZFT | 1036 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded vitric has vitric layer properties with respect to sorption. DOE range for Ra in vitric rocks is 0.05 to 0.6 m3/kg, uniform. RT |
| MatrixKD_CHnzRa[m3/kg] | Matrix Kd of Ra for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | uniform | 1.0, 5.0 | Same as MatrixKD_CHnz_Cs[m3/kg] | DT | UZFT | 1037 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded zeolitic has zeolitic characteristics for soprtion. DOE range for Ra Kds in zeolitic rocks is 1.0 to 5.0, uniform. RT Ambient |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| MatrixKD_PPw_Ra[m3/kg] | Matrix Kd of Ra for Prow Pass-welded[m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_PPw_Cs[m3/kg] | DT | UZFT | 1038 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the Prow Pass units have both zeolitic and devitrified characteristics. When a difference in sorption values exists between these two rock types, the lower range will be used arbitrarily. DOE values for Ra in devitrified rocks is 0.1 to 1.0 (m3/kg), |
| MatrixKD_UCF_Ra[m3/kg] | Matrix Kd of Ra for Upper Crater Flat[m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_UCF_Cs[m3/kg] | DT | UZFT | 1039 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), UCF is not listed. It may be assumed that undifferentiated Crater Flat tuff would have characteristics of Prow Pass, Bullfrog, and Tram Tuffs, which are dominated by devitrified units but have zeolitic and vitric subunits as well. As before for PPw and BFw, the lower of Kd ranges for zeolitic and devitrified rock type will be used for UCF. DOE values for Ra in devitrified rocks is 0.1 to 1.0 |
| MatrixKD_BFw_Ra[m3/kg] | Matrix Kd of Ra for Bullfrog—welded [m3/kg] (UZ) | uniform | 1.0, 5.0 | Same as MatrixKD_BFw_Cs[m3/kg] | DT | UZFT | 1040 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), subunits that comprise the BFw have vitric, zeolitic and devitrified characteristics. The unit as a whole appears to have significant devitrified zones. It seems reasonable that the lower Kd value for zeolitic or devitriifed be used for the BFw. DOE values for Ra in devitrified rocks is 0.1 to 1.0 |
| MatrixKD_UFZ_Ra[m3/kg] | Matrix Kd of Ra for Unsaturated Fracture Zone[m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_UFZ_Cs[m3/kg] | DT | UZFT | 1041 | McMurry | | | There is no direct information for UFZ in the Mineralogical Model AMR (MM3.0), thus, and assumption of vitric is assumed for this layer/region, since DOE vitric Kds are usually lowest and most conservative. DOE range for Ra in vitric rocks is |
| MatrixKD_TSw_Pb[m3/kg] | Matrix Kd of Pb for Topopah Spring-welded[m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_TSw_Cs[m3/kg] | DT | UZFT | 1042 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the units that make up the TSw are nearly vitric in nature in the UZ. Thus vitric DOE values are used. U0100 AMR 2001 has same range for Pb Kds for all rock types, 0.1 to 0.5 m3/kg, uniform. |
| MatrixKD_CHnvPb[m3/kg] | Matrix Kd of Pb for Calico Hills—nonwelded vitric [m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_CHnv_Cs[m3/kg] | DT | UZFT | 1043 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded vitric has vitric layer properties with respect to sorption. U0100 AMR 2001 has same range for Pb Kds for all rock types, |
| MatrixKD_CHnzPb[m3/kg] | Matrix Kd of Pb for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_CHnz_Cs[m3/kg] | DT | UZFT | 1044 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded zeolitic has zeolitic characteristics for soprtion. U0100 AMR 2001 has same range for Pb Kds for all rock types, 0.1 to 0.5 |
| MatrixKD_PPw_Pb[m3/kg] | Matrix Kd of Pb for Prow Pass-welded[m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_PPw_Cs[m3/kg] | DT | UZFT | 1045 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the Prow Pass units have both zeolitic and devitrified characteristics. When a difference in sorption values exists between these two rock types, the lower range will be used arbitrarily. U0100 AMR 2001 has same range for Pb Kds for all rock types, |
| MatrixKD_UCF_Pb[m3/kg] | Matrix Kd of Pb for Upper Crater Flat[m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_UCF_Cs[m3/kg] | DT | UZFT | 1046 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), UCF is not listed. It may be assumed that undifferentiated Crater Flat tuff would have characteristics of Prow Pass, Bullfrog, and Tram Tuffs, which are dominated by devitrified units but have zeolitic and vitric subunits as well. As before for PPw and BFw, the lower of Kd ranges for zeolitic and devitrified rock type will be used for UCF. U0100 AMR 2001 has same range for Pb Kds for all |
| MatrixKD_BFw_Pb[m3/kg] | Matrix Kd of Pb for Bullfrog—welded [m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_BFw_Cs[m3/kg] | DT | UZFT | 1047 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), subunits that comprise the BFw have vitric, zeolitic and devitrified characteristics. The unit as a whole appears to have significant devitrified zones. It seems reasonable that the lower Kd value for zeolitic or devitriifed be used for the BFw. U0100 AMR 2001 has same range for Pb Kds for all rock |

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| MatrixKD_UFZ_Pb[m3/kg] | Matrix Kd of Pb for Unsaturated Fracture Zone[m3/kg] (UZ) | uniform | 0.1, 0.5 | Same as MatrixKD_UFZ_Cs[m3/kg] | DT | UZFT | 1048 | McMurry | | | There is no direct information for UFZ in the Mineralogical Model AMR (MM3.0), thus, and assumption of vitric is assumed for this layer/region, since DOE vitric Kds are usually lowest and most conservative. U0100 AMR 2001 has same range for Pb Kds for all rock types, 0.1 to 0.5 m3/kg, uniform. |
| MatrixKD_TSw_Cs[m3/kg] | Matrix Kd of Cs for Topopah Spring-welded[m3/kg] (UZ) | uniform | 0.02, 1.0 | Data are taken from DOE compilations (Triay et al. 1997). Justification for the PDF type is documented in DOE/NRC agreement RT-1.05 [OBS, EXP] | DT | UZFT | 1049 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the units that make up the TSw are nearly vitric in nature in the UZ. Thus vitric DOE values are used. RT Ambient AMR lists Cs Kd values for vitric rocks as user defined distribution, 0=0%, |
| MatrixKD_CHnvCs[m3/kg] | Matrix Kd of Cs for Calico Hills—nonwelded vitric [m3/kg] (UZ) | uniform | 0.01, 0.1 | Data are taken from DOE compilations (Triay et al. 1997). Justification for the PDF type is documented in DOE/NRC | DT | UZFT | 1050 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded vitric has vitric layer properties with respect to sorption. RT Ambient AMR lists Cs Kd values for vitirc rocks as user |
| MatrixKD_CHnzCs[m3/kg] | Matrix Kd of Cs for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | uniform | 0.5, 5.0 | Data are taken from DOE compilations (Triay et al. 1997). Justification for the PDF type is documented in DOE/NRC agreement RT-1.05 [OBS, EXP] | DT | UZFT | 1051 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded zeolitic has zeolitic characteristics for sorption. RT Ambient AMR 2003 lists Cs Kds for zeolitic layers as user defined distribution, 0.425=0%, 5.0=50%, 20.0=100%. |
| MatrixKD_PPw_Cs[m3/kg] | Matrix Kd of Cs for Prow Pass-welded[m3/kg] (UZ) | uniform | 0.02, 1.0 | Data are taken from DOE compilations (Triay et al. 1997). Justification for the PDF type is documented in DOE/NRC agreement RT-1.05 [OBS, EXP] | DT | UZFT | 1052 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the Prow Pass units have both zeolitic and devitrified characteristics. When a difference in sorption values exists between these two rock types, the lower range will be used arbitrarily. RT Ambient AMR 2003 lists a range of 0.001 to 0.015 m3/kg, |
| MatrixKD_UCF_Cs[m3/kg] | Matrix Kd of Cs for Upper Crater Flat[m3/kg] (UZ) | uniform | 0.02, 1.0 | Data are taken from DOE compilations (Triay et al. 1997). Justification for the PDF type is documented in DOE/NRC agreement RT-1.05 [OBS, EXP] | DT | UZFT | 1053 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), UCF is not listed. It may be assumed that undifferentiated Crater Flat tuff would have characteristics of Prow Pass, Bullfrog, and Tram Tuffs, which are dominated by devitrified units but have zeolitic and vitric subunits as well. As before for PPw and BFw, the lower of Kd ranges for zeolitic and devitrified rock type will be used for UCF. RT |
| MatrixKD_BFw_Cs[m3/kg] | Matrix Kd of Cs for Bullfrog—welded [m3/kg] (UZ) | uniform | 0.02, 1.0 | Data are taken from DOE compilations (Triay et al. 1997). Justification for the PDF type is documented in DOE/NRC agreement RT-1.05 [OBS, EXP] | DT | UZFT | 1054 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), subunits that comprise the BFw have vitric, zeolitic and devitrified characteristics. The unit as a whole appears to have significant devitrified zones. It seems reasonable that the lower Kd value for zeolitic or devitriifed be used for the BFw. RT Ambient AMR 2003 lists a range of 0.001 to 0.015 |
| MatrixKD_UFZ_Cs[m3/kg] | Matrix Kd of Cs for Unsaturated Fracture Zone[m3/kg] (UZ) | uniform | 0.02, 1.0 | Data are taken from DOE compilations (Triay et al. 1997). Justification for the PDF type is documented in DOE/NRC agreement RT-1.05 [OBS, EXP] | DT | UZFT | 1055 | McMurry | | | There is no direct information for UFZ in the Mineralogical Model AMR (MM3.0), thus, and assumption of vitric is assumed for this layer/region, since DOE vitric Kds are usually lowest and most conservative. RT Ambient AMR lists Cs Kd values for vitric rocks as user defined distribution, 0=0%, |
| MatrixKD_TSw_Ni[m3/kg] | Matrix Kd of Ni for Topopah Spring-welded[m3/kg] (UZ) | beta | 0.0, 0.5, 7.146, 28.585 | Same as MatrixKD_TSw_Cs[m3/kg] | DT | UZFT | 1056 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the units that make up the TSw are nearly vitric in nature in the UZ. Thus vitric DOE values are used. DOE values for Ni Kds in U0100 AMR 2001 are 0 to 0.05 m3/kg in vitric layers, beta distribution, |
| MatrixKD_CHnvNi[m3/kg] | Matrix Kd of Ni for Calico Hills—nonwelded vitric [m3/kg] (UZ) | beta | 0.0, 0.1, 4.091, 4.091 | Same as MatrixKD_CHnv_Cs[m3/kg] | DT | UZFT | 1057 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded vitric has vitric layer properties with respect to sorption. DOE values for Ni Kds in U0100 AMR 2001 are 0 to 0.05 m3/kg in vitric layers, beta distribution, expected value 0.03, |
| MatrixKD_CHnzNi[m3/kg] | Matrix Kd of Ni for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | beta | 0.0, 0.5, 7.146, 28.585 | Same as MatrixKD_CHnz_Cs[m3/kg] | DT | UZFT | 1058 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded zeolitic has zeolitic characteristics for soprtion. Kds for Ni in DOE U0100 AMR 2001 are 0 to 0.2, beta, expected value 0.05, COV=0.33, stdev=0.01 for both devitrified and |

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| MatrixKD_PPw_Ni[m3/kg] | Matrix Kd of Ni for Prow Pass-welded[m3/kg] (UZ) | beta | 0.0, 0.5, 7.146, 28.585 | Same as MatrixKD_PPw_Cs[m3/kg] | DT | UZFT | 1059 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the Prow Pass units have both zeolitic and devitrified characteristics. When a difference in sorption values exists between these two rock types, the lower range will be used arbitrarily. Kds for Ni in DOE U0100 AMR 2001 are 0 to 0.2, beta, expected value 0.05, COV=0.33, stdev=0.01 for both |
| MatrixKD_UCF_Ni[m3/kg] | Matrix Kd of Ni for Upper Crater Flat[m3/kg] (UZ) | beta | 0.0, 0.5, 7.146, 28.585 | Same as MatrixKD_UCF_Cs[m3/kg] | DT | UZFT | 1060 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), UCF is not listed. It may be assumed that undifferentiated Crater Flat tuff would have characteristics of Prow Pass, Bullfrog, and Tram Tuffs, which are dominated by devitrified units but have zeolitic and vitric subunits as well. As before for PPw and BFw, the lower of Kd ranges for zeolitic and devitrified rock type will be used for UCF. Kds for Ni in DOE U0100 AMR 2001 are 0 to 0.2, beta, |
| MatrixKD_BFw_Ni[m3/kg] | Matrix Kd of Ni for Bullfrog—welded [m3/kg] (UZ) | beta | 0.0, 0.5, 7.146, 28.585 | Same as MatrixKD_BFw_Cs[m3/kg] | DT | UZFT | 1061 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), subunits that comprise the BFw have vitric, zeolitic and devitrified characteristics. The unit as a whole appears to have significant devitrified zones. It seems reasonable that the lower Kd value for zeolitic or devitriifed be used for the BFw. Kds for Ni in DOE U0100 AMR 2001 are 0 to 0.2, beta, expected value 0.05, COV=0.33, stdev=0.01 for |
| MatrixKD_UFZ_Ni[m3/kg] | Matrix Kd of Ni for Unsaturated Fracture Zone[m3/kg] (UZ) | beta | 0.0, 0.5, 7.146, 28.585 | Same as MatrixKD_UFZ_Cs[m3/kg] | DT | UZFT | 1062 | McMurry | | | There is no direct information for UFZ in the Mineralogical Model AMR (MM3.0), thus, and assumption of vitric is assumed for this layer/region, since DOE vitric Kds are usually lowest and most conservative. Kds for Ni in DOE U0100 AMR 2001 are 0 to 0.2, beta, expected value 0.05, COV=0.33, |
| MatrixKD_TSw_C[m3/kg] | Matrix Kd of C for Topopah Spring-welded[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1063 | McMurry | | | Assume no retardation for C in UZ or SZ. C is subject to more exchange and sorption reactions than other anions (such as Tc) but assumption is |
| MatrixKD_CHnvC[m3/kg] | Matrix Kd of C for Calico Hills—nonwelded vitric [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1064 | McMurry | | | Assume no retardation for C in UZ or SZ. C is subject to more exchange and sorption reactions than other anions (such as Tc) but assumption is |
| MatrixKD_CHnzC[m3/kg] | Matrix Kd of C for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1065 | McMurry | | | Assume no retardation for C in UZ or SZ. C is subject to more exchange and sorption reactions than other anions (such as Tc) but assumption is |
| MatrixKD_PPw_C[m3/kg] | Matrix Kd of C for Prow Pass-welded[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1066 | McMurry | | | Assume no retardation for C in UZ or SZ. C is subject to more exchange and sorption reactions than other anions (such as Tc) but assumption is |
| MatrixKD_UCF_C[m3/kg] | Matrix Kd of C for Upper Crater Flat[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1067 | McMurry | | | Assume no retardation for C in UZ or SZ. C is subject to more exchange and sorption reactions than other anions (such as Tc) but assumption is |
| MatrixKD_BFw_C[m3/kg] | Matrix Kd of C for Bullfrog—welded [m3/kg] (UZ) | constant | 0.0 | Data taken from Tray et al (1997) and assumes no retardation for carbon, consistent with anionic species. It is also a bounding value | DT | UZFT | 1068 | McMurry | | | Assume no retardation for C in UZ or SZ. C is subject to more exchange and sorption reactions than other anions (such as Tc) but assumption is conservative. |
| MatrixKD_UFZ_C[m3/kg] | Matrix Kd of C for Unsaturated Fracture Zone[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] | DT | UZFT | 1069 | McMurry | | | Assume no retardation for C in UZ or SZ. C is subject to more exchange and sorption reactions than other anions (such as Tc) but assumption is |
| MatrixKD_TSw_Se[m3/kg] | Matrix Kd of Se for Topopah Spring-welded[m3/kg] (UZ) | beta | 0.0, 0.03, 0.8, 7.2 | Same as MatrixKD_TSw_Cs[m3/kg] | DT | UZFT | 1070 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the units that make up the TSw are nearly vitric in nature in the UZ. Thus vitric DOE values are used. Most recent Se values are in U0100 AMR 2001 and are same for all rock types. Beta exponential distribution, 0 to 0.001 m3/kg, expected |

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| MatrixKD_CHnvSe[m3/kg] | Matrix Kd of Se for Calico Hills—nonwelded vitric [m3/kg] (UZ) | beta | 0.0, 0.02, 0.7, 3.961 | Same as MatrixKD_CHnv_Cs[m3/kg] | DT | UZFT | 1071 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded vitric has vitric layer properties with respect to sorption. Most recent Se values are in U0100 AMR 2001 and are same for all rock types. Beta exponential distribution, 0 to 0.001 m3/kg, expected value= 0.0001, stdev= 0.0001, |
| MatrixKD_CHnzSe[m3/kg] | Matrix Kd of Se for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | beta | 0.0, 0.015, 0.733, 4.767 | Same as MatrixKD_CHnz_Cs[m3/kg] | DT | UZFT | 1072 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded zeolitic has zeolitic characteristics for soprtion. Most recent Se values are in U0100 AMR 2001 and are same for all rock types. Beta exponential distribution, 0 to 0.001 m3/kg, expected value= 0.0001, stdev= 0.0001, |
| MatrixKD_PPw_Se[m3/kg] | Matrix Kd of Se for Prow Pass-welded[m3/kg] (UZ) | beta | 0.0, 0.03, 0.8, 7.2 | Same as MatrixKD_PPw_Cs[m3/kg] | DT | UZFT | 1073 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the Prow Pass units have both zeolitic and devitrified characteristics. When a difference in sorption values exists between these two rock types, the lower range will be used arbitrarily. Most recent Se values are in U0100 AMR 2001 and are same for all rock types. Beta exponential distribution, 0 to 0.001 m3/kg, expected value= 0.0001, stdev= |
| MatrixKD_UCF_Se[m3/kg] | Matrix Kd of Se for Upper Crater Flat[m3/kg] (UZ) | beta | 0.0, 0.03, 0.8, 7.2 | Same as MatrixKD_UCF_Cs[m3/kg] | DT | UZFT | 1074 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), UCF is not listed. It may be assumed that undifferentiated Crater Flat tuff would have characteristics of Prow Pass, Bullfrog, and Tram Tuffs, which are dominated by devitrified units but have zeolitic and vitric subunits as well. As before for PPw and BFw, the lower of Kd ranges for zeolitic and devitrified rock type will be used for UCF. Most recent Se values are in U0100 AMR 2001 and are same for all rock types. Beta exponential |
| MatrixKD_BFw_Se[m3/kg] | Matrix Kd of Se for Bullfrog—welded [m3/kg] (UZ) | beta | 0.0, 0.03, 0.8, 7.2 | Same as MatrixKD_BFw_Cs[m3/kg] | DT | UZFT | 1075 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), subunits that comprise the BFw have vitric, zeolitic and devitrified characteristics. The unit as a whole appears to have significant devitrified zones. It seems reasonable that the lower Kd value for zeolitic or devitriifed be used for the BFw. Most recent Se values are in U0100 AMR 2001 and are same for all rock types. Beta exponential distribution, 0 to 0.001 m3/kg, expected value= |
| MatrixKD_UFZ_Se[m3/kg] | Matrix Kd of Se for Unsaturated Fracture Zone[m3/kg] (UZ) | beta | 0.0, 0.03, 0.8, 7.2 | Same as MatrixKD_UFZ_Cs[m3/kg] | DT | UZFT | 1076 | McMurry | | | There is no direct information for UFZ in the Mineralogical Model AMR (MM3.0), thus, and assumption of vitric is assumed for this layer/region, since DOE vitric Kds are usually lowest and most conservative. Most recent Se values are in U0100 AMR 2001 and are same for all rock types. Beta exponential distribution, 0 to 0.001 m3/kg, expected |
| MatrixKD_TSw_Nb[m3/kg] | Matrix Kd of Nb for Topopah Spring-welded[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_Nb[m3/kg] | DT | UZFT | 1077 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the units that make up the TSw are nearly vitric in nature in the UZ. Thus vitric DOE values are used. Using the trivalent analogy, Am Kds are substituted for Nb. The RT Models Under Ambient AMR 2003 has vitric Am Kds of 0.1 to 1.0 m3/kg in a piecewise distribution, with 0.1=0%, 0.4=50%, and 1.0=100%. This has a slightly lower mean than the |
| MatrixKD_CHnvNb[m3/kg] | Matrix Kd of Nb for Calico Hills—nonwelded vitric [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_Nb[m3/kg] | DT | UZFT | 1078 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded vitric has vitric layer properties with respect to sorption. Using the trivalent analogy, Am Kds are substituted for Nb. The RT Models Under Ambient AMR 2003 has vitric Am Kds of 0.1 to 1.0 m3/kg in a piecewise distribution, with 0.1=0%, 0.4=50%, and 1.0=100%. This has a slightly lower mean than the 0.1 to 1.0 |

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| MatrixKD_CHnzNb[m3/kg] | Matrix Kd of Nb for Calico Hills—nonwelded zeolitic [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_Nb[m3/kg] | DT | UZFT | 1079 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the CH non-welded zeolitic has zeolitic characteristics for soprtion. Using the trivalent analogy Am Kds are substituted for Nb. The RTAmbient AMR 2003 has zeolitic Kds for Am |
| MatrixKD_PPw_Nb[m3/kg] | Matrix Kd of Nb for Prow Pass-welded[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_Nb[m3/kg] | DT | UZFT | 1080 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), the Prow Pass units have both zeolitic and devitrified characteristics. When a difference in sorption values exists between these two rock types, the lower range will be used arbitrarily. Using the trivalent analogy Am Kds are substituted for Nb. The RTAmbient AMR 2003 has zeolitic Kds for Am ranging from 0.1 to 1.0 m3/kg, uniform. Kds for devit |
| MatrixKD_UCF_Nb[m3/kg] | Matrix Kd of Nb for Upper Crater Flat[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_Nb[m3/kg] | DT | UZFT | 1081 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), UCF is not listed. It may be assumed that undifferentiated Crater Flat tuff would have characteristics of Prow Pass, Bullfrog, and Tram Tuffs, which are dominated by devitrified units but have zeolitic and vitric subunits as well. As before for PPw and BFw, the lower of Kd ranges for zeolitic and devitrified rock type will be used for UCF. Using the trivalent analogy Am Kds are substituted for Nb. The RTAmbient AMR 2003 has zeolitic Kds |
| MatrixKD_BFw_Nb[m3/kg] | Matrix Kd of Nb for Bullfrog-welded [m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_C[m3/kg] with the additional comment: Triay et al. (1997) indicate that Nb(OH)50 and Nb(OH)6- are likely to be dominant spcies | DT | UZFT | 1082 | McMurry | | | Based on review of Mineralogical Model AMR (MM3.0), subunits that comprise the BFw have vitric, zeolitic and devitrified characteristics. The unit as a whole appears to have significant devitrified zones. It seems reasonable that the lower Kd value for zeolitic or devitriifed be used for the BFw. Using the trivalent analogy Am Kds are substituted for Nb. The RTAmbient AMR 2003 has zeolitic Kds for Am ranging from 0.1 to 1.0 m3/kg, uniform. Kds for devit |
| MatrixKD_UFZ_Nb[m3/kg] | Matrix Kd of Nb for Unsaturated Fracture Zone[m3/kg] (UZ) | constant | 0.0 | Same as MatrixKD_BFw_Nb[m3/kg] | DT | UZFT | 1083 | McMurry | | | There is no direct information for UFZ in the Mineralogical Model AMR (MM3.0), thus, and assumption of vitric is assumed for this layer/region, since DOE vitric Kds are usually lowest and most conservative. Using the trivalent analogy, Am Kds are substituted for Nb. The RT Models Under Ambient AMR 2003 has vitric Am Kds of 0.1 to 1.0 m3/kg in a piecewise distribution, with 0.1=0%, 0.4=50%, and 1.0=100%. This has a slightly lower |
| FractureRD_TSw_I | Fracture retardation coefficient of I for Topopah | constant | 1.0 | Same as FractureRD_BFw_I | DT | UZFT | 1091 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzI | Fracture retardation coefficient of I for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_I | DT | UZFT | 1093 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_I | Fracture retardation coefficient of I for Prow Pass—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_I | DT | UZFT | 1094 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_I | Fracture retardation coefficient of I for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_I | DT | UZFT | 1095 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_I | Fracture retardation coefficient of I for Bullfrog—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_CI except for the comment: consistent with anionic species (I-) | DT | UZFT | 1096 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_I | Fracture retardation coefficient of I for Unsaturated Fracture Zone (UZ) | constant | 1.0 | Same as FractureRD_BFw_I | DT | UZFT | 1097 | McMurry | | | No fracture retardation. All layers, all nuclides. |

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| FractureRD_TSw_Tc | Fracture retardation coefficient of Tc for Topopah | constant | 1.0 | Same as FractureRD_BFw_Tc | DT | UZFT | 1098 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvTc | Fracture retardation coefficient of Tc for Calico Hills—nonwelded | constant | 1.0 | Same as FractureRD_BFw_Tc | DT | UZFT | 1099 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzTc | Fracture retardation coefficient of Tc for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_Tc | DT | UZFT | 1100 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_Tc | Fracture retardation coefficient of Tc for Prow Pass—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_Tc | DT | UZFT | 1101 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_Tc | Fracture retardation coefficient of Tc for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_Tc | DT | UZFT | 1102 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_Tc | Fracture retardation coefficient of Tc for Unsaturated Fracture Zone (UZ) | constant | 1.0 | Same as FractureRD_BFw_Tc | DT | UZFT | 1104 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_TSw_Cl | Fracture retardation coefficient of Cl for Topopah | constant | 1.0 | Same as FractureRD_BFw_Cl | DT | UZFT | 1105 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzCl | Fracture retardation coefficient of Cl for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cl | DT | UZFT | 1107 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_Cl | Fracture retardation coefficient of Cl for Prow Pass—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cl | DT | UZFT | 1108 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_Cl | Fracture retardation coefficient of Cl for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cl | DT | UZFT | 1109 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_Cl | Fracture retardation coefficient of Cl for Bullfrog—welded (UZ) | constant | 1.0 | Value assumes no fracture retardation (Kd=0,Rf=1) and is consistent with anionic species (Cl- | DT | UZFT | 1110 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_Cl | Fracture retardation coefficient of Unsaturated Fracture | constant | 1.0 | Same as FractureRD_BFw_Cl | DT | UZFT | 1111 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_TSw_Cm | Fracture retardation coefficient of Cm for Topopah Spring—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cm | DT | UZFT | 1112 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzCm | Fracture retardation coefficient of Cm for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cm | DT | UZFT | 1114 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_Cm | Fracture retardation coefficient of Cm for Prow Pass—welded | constant | 1.0 | Same as FractureRD_BFw_Cm | DT | UZFT | 1115 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_Cm | Fracture retardation coefficient of Cm for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cm | DT | UZFT | 1116 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_Cm | Fracture retardation coefficient of Cm for Bullfrog—welded (UZ) | constant | 1.0 | Value assumes no fracture retardation (Kd=0,Rf=1). It is also a bounding assumption for fracture | DT | UZFT | 1117 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_Cm | Fracture retardation coefficient of Unsaturated Fracture | constant | 1.0 | Same as FractureRD_BFw_Cm | DT | UZFT | 1118 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_TSw_Ra | Fracture retardation coefficient of Ra for Topopah | constant | 1.0 | Same as FractureRD_BFw_Ra | DT | UZFT | 1119 | McMurry | | | No fracture retardation. All layers, all nuclides. |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
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| FractureRD_CHnvRa | Fracture retardation coefficient of Ra for Calico Hills—nonwelded | constant | 1.0 | Same as FractureRD_BFw_Ra | DT | UZFT | 1120 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzRa | Fracture retardation coefficient of Ra for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_Ra | DT | UZFT | 1121 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_Ra | Fracture retardation coefficient of Ra for Prow Pass—welded | constant | 1.0 | Same as FractureRD_BFw_Ra | DT | UZFT | 1122 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_Ra | Fracture retardation coefficient of Ra for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_Ra | DT | UZFT | 1123 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_Ra | Fracture retardation coefficient of Ra for Bullfrog—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1124 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_Ra | Fracture retardation coefficient of Ra for Unsaturated Fracture Zone (UZ) | constant | 1.0 | Same as FractureRD_BFw_Ra | DT | UZFT | 1125 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_TSw_Pb | Fracture retardation coefficient of Pb for Topopah | constant | 1.0 | Same as FractureRD_BFw_Pb | DT | UZFT | 1126 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvPb | Fracture retardation coefficient of Pb for Calico Hills—nonwelded | constant | 1.0 | Same as FractureRD_BFw_Pb | DT | UZFT | 1127 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzPb | Fracture retardation coefficient of Pb for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_Pb | DT | UZFT | 1128 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_Pb | Fracture retardation coefficient of Pb for Prow Pass—welded | constant | 1.0 | Same as FractureRD_BFw_Pb | DT | UZFT | 1129 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_Pb | Fracture retardation coefficient of Pb for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_Pb | DT | UZFT | 1130 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_Pb | Fracture retardation coefficient of Pb for Bullfrog—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1131 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_Pb | Fracture retardation coefficient of Pb for Unsaturated Fracture Zone (UZ) | constant | 1.0 | Same as FractureRD_BFw_Pb | DT | UZFT | 1132 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_TSw_Cs | Fracture retardation coefficient of Cs for Topopah | constant | 1.0 | Same as FractureRD_BFw_Cs | DT | UZFT | 1133 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzCs | Fracture retardation coefficient of Cs for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cs | DT | UZFT | 1135 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_Cs | | constant | 1.0 | Same as FractureRD_BFw_Cs | DT | UZFT | 1136 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_Cs | Fracture retardation coefficient of Cs for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cs | DT | UZFT | 1137 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_Cs | Fracture retardation coefficient of Cs for Bullfrog—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1138 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_Cs | Fracture retardation coefficient of Cs for Unsaturated Fracture Zone (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cs | DT | UZFT | 1139 | McMurry | | | No fracture retardation. All layers, all nuclides. |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
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| FractureRD_TSw_Ni | Fracture retardation coefficient of Ni for Topopah | constant | 1.0 | Same as FractureRD_BFw_Ni | DT | UZFT | 1140 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzNi | Fracture retardation coefficient of Ni for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_Ni | DT | UZFT | 1142 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_Ni | Fracture retardation coefficient of Ni for Prow Pass—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_Ni | DT | UZFT | 1143 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_Ni | Fracture retardation coefficient of Ni for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_Ni | DT | UZFT | 1144 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_Ni | Fracture retardation coefficient of Ni for Bullfrog—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1145 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_Ni | Fracture retardation coefficient of Ni for Unsaturated Fracture Zone (UZ) | constant | 1.0 | Same as FractureRD_BFw_Ni | DT | UZFT | 1146 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_TSw_C | Fracture retardation coefficient of C for Topopah | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1147 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzC | Fracture retardation coefficient of C for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1149 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_C | Fracture retardation coefficient of C for Prow Pass—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1150 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_C | Fracture retardation coefficient of C for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1151 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_C | Fracture retardation coefficient of C for Bullfrog—welded (UZ) | constant | 1.0 | Value assumes no fracture retardation (Kd=0,Rf=1). It is also a bounding assumption for fracture | DT | UZFT | 1152 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_C | Fracture retardation coefficient of C for Unsaturated Fracture Zone (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1153 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_TSw_Se | Fracture retardation coefficient of Se for Topopah | constant | 1.0 | Same as FractureRD_BFw_Se | DT | UZFT | 1154 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvSe | Fracture retardation coefficient of Se for Calico Hills—nonwelded | constant | 1.0 | Same as FractureRD_BFw_Se | DT | UZFT | 1155 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzSe | Fracture retardation coefficient of Se for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_Se | DT | UZFT | 1156 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_Se | Fracture retardation coefficient of Se for Prow Pass—welded | constant | 1.0 | Same as FractureRD_BFw_Se | DT | UZFT | 1157 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_Se | Fracture retardation coefficient of Se for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_Se | DT | UZFT | 1158 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_Se | Fracture retardation coefficient of Se for Bullfrog—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1159 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_Se | Fracture retardation coefficient of Se for Unsaturated Fracture Zone (UZ) | constant | 1.0 | Same as FractureRD_BFw_Se | DT | UZFT | 1160 | McMurry | | | No fracture retardation. All layers, all nuclides. |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
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| FractureRD_TSw_Nb | Fracture retardation coefficient of Nb for Topopah | constant | 1.0 | Same as FractureRD_BFw_Nb | DT | UZFT | 1161 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnzNb | Fracture retardation coefficient of Nb for Calico Hills—nonwelded zeolitic (UZ) | constant | 1.0 | Same as FractureRD_BFw_Nb | DT | UZFT | 1163 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_PPw_Nb | Fracture retardation coefficient of Nb for Prow Pass—welded | constant | 1.0 | Same as FractureRD_BFw_Nb | DT | UZFT | 1164 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UCF_Nb | Fracture retardation coefficient of Nb for Upper Crater Flat (UZ) | constant | 1.0 | Same as FractureRD_BFw_Nb | DT | UZFT | 1165 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_Nb | Fracture retardation coefficient of Nb for Bullfrog—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_C | DT | UZFT | 1166 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_UFZ_Nb | Fracture retardation coefficient of Nb for Unsaturated Fracture Zone (UZ) | constant | 1.0 | Same as FractureRD_BFw_Nb | DT | UZFT | 1167 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvI | Fracture retardation coefficient of I for Calico Hills—nonwelded vitric | constant | 1.0 | Same as FractureRD_BFw_I | DT, DP | UZFT | 1092 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_BFw_Tc | Fracture retardation coefficient of Tc for Bullfrog—welded (UZ) | constant | 1.0 | Same as FractureRD_BFw_Cl except for the comment: consistent with anionic species (TcO4-) | DT, DP | UZFT | 1103 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvCl | Fracture retardation coefficient of Cl for Calico Hills—nonwelded | constant | 1.0 | Same as FractureRD_BFw_Cl | DT, DP | UZFT | 1106 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvCm | Fracture retardation coefficient of Cm for Calico Hills—nonwelded | constant | 1.0 | Same as FractureRD_BFw_Cm | DT, DP | UZFT | 1113 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvCs | Fracture retardation coefficient of Cs for Calico Hills—nonwelded | constant | 1.0 | Same as FractureRD_BFw_Cs | DT, DP | UZFT | 1134 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvNi | Fracture retardation coefficient of Ni for Calico Hills—nonwelded | constant | 1.0 | Same as FractureRD_BFw_Ni | DT, DP | UZFT | 1141 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvC | Fracture retardation coefficient of C for Calico | constant | 1.0 | Same as FractureRD_BFw_C | DT, DP | UZFT | 1148 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| FractureRD_CHnvNb | Fracture retardation coefficient of Nb for Calico Hills—nonwelded | constant | 1.0 | Same as FractureRD_BFw_Nb | DT, DP | UZFT | 1162 | McMurry | | | No fracture retardation. All layers, all nuclides. |
| UnsaturatedZoneMinimumVelocityChangeFactor[Fraction] | Same velocity is used unless the velocity changes by this fraction of the initial velocity. However, the minimum time span over which velocity does not change | constant | 0.4 | Equivalent to a program control switch; specified constant based on experience and expert opinion | GWW | UZFT | 1001 | | | | |
| LogCO2PartialPressure_AllUZ_SZLayers[atm] | (correlated with pH_AllUZ_SZLayers[StandardUnits]) | triangular | -4.0, -2.5, -1.0 | Data from Perfect et al. (1995) and consistent with Yang et al. (1996). PDF slection based [OBS, EXP] | PB | UZFT | 1005 | Bertetti McMurry | **Change required but not ready** | | Critical comments on Bertetti et al., 2004 (in which this distribution was determined) suggest a more rigorous analysis needed to establish distribution. Change may affect distribution type but will have little impact on max and min. Work in progress. |
| pH_AllUZ_SZLayers[StandardUnits] | None (correlated with LogCO2PartialPressure_AllUZ_SZLayers[atm]) | triangular | 6.7, 7.8, 9.2 | Data from Perfect et al. (1995) and consistent with Yang et al. (1996); PDF slection based [OBS, EXP] | PB | UZFT | 1006 | Bertetti McMurry | **Change required but not ready** | | Critical comments on Bertetti et al., 2004 (in which this distribution was determined) suggest a more rigorous analysis needed to establish distribution. Change may affect distribution type but will have little impact on max and min. Work in progress. |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
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| MatrixGrainDensity_TSw_[kg/m3] | Matrix grain density for Topopah Spring—welded (UZ) (kg/m3) | constant | 2460.0 | Same as MatrixGrainDensity_BFw_[kg/m3] | PB | UZFT | 1189 | McMurry? | no change | | These values along with porosities for each layer should be reviewed for consistency with the purported source materials. However, in the RT calculations they "cancel out" so that only matrix porosity is important in determining Rf. Thus, if |
| MatrixGrainDensity_CHnv [kg/m3] | Matrix grain density for Calico Hills—nonwelded vitric (UZ) (kg/m3) | constant | 2260.0 | Same as MatrixGrainDensity_BFw_[kg/m3] | PB | UZFT | 1190 | McMurry? | no change | | |
| MatrixGrainDensity_CHnz [kg/m3] | Matrix grain density for Calico Hills—nonwelded zeolitic (UZ) (kg/m3) | constant | 2400.0 | Same as MatrixGrainDensity_BFw_[kg/m3] | PB | UZFT | 1191 | McMurry? | no change | | |
| MatrixGrainDensity_PPw_[kg/m3] | Matrix grain density for Prow Pass—welded | constant | 2540.0 | Same as MatrixGrainDensity_BFw_[kg/m3] | PB | UZFT | 1192 | McMurry? | no change | | |
| MatrixGrainDensity_UCF_[kg/m3] | Matrix grain density for Upper Crater Flat (UZ) (kg/m3) | constant | 2420.0 | Same as MatrixGrainDensity_BFw_[kg/m3] | PB | UZFT | 1193 | McMurry? | no change | | |
| MatrixGrainDensity_BFw_[kg/m3] | Matrix grain density for Bullfrog—welded (UZ) (kg/m3) | constant | 2570.0 | Best estimate by the USFIC team, based on averaging of subunit data reported by Flint (1998). Constant values assumed because little | PB | UZFT | 1194 | McMurry? | no change | | |
| MatrixGrainDensity_UFZ_[kg/m3] | Matrix grain density for Unsaturated Fault Zone (UZ) (kg/m3) | constant | 2630.0 | Same as MatrixGrainDensity_BFw_[kg/m3] | PB | UZFT | 1195 | McMurry? | no change | | |
| MatrixLongitudinalDispersivity[FractionOfLayer] | Maximum matrix longitudinal dispersivity specified as a fraction of | constant | 0.06 | Based on USFIC expert judgement using information from CRWMS M&O(2000), Gelhar et al. (1992) | RF | UZFT | 1002 | | | | |
| FractureLongitudinalDispersivity[FractionOfLayer] | Maximum fracture longitudinal dispersivity specified as a fraction of layer thickness | constant | 0.06 | Based on USFIC expert judgement using information from CRWMS M&O(2000), Gelhar et al. (1992) and Jury et al. (1991) [EXP] | RF | UZFT | 1003 | | | | |
| MatrixPermeability_TSw_[m2] | Matrix permeability for Topopah Spring welded tuff (UZ) (m2) | lognormal | 5.6e-20, 5.6e-18 | Same as MatrixPermeability_BFw_[m2] | RF | UZFT | 1168 | | | | |
| MatrixPermeability_CHnv[m2] | Matrix permeability for Calico Hills Formation nonwelded vitric tuff (UZ) (m2) | lognormal | 1.8e-15, 1.8e-13 | Same as MatrixPermeability_BFw_[m2] | RF | UZFT | 1169 | | | | |
| MatrixPermeability_CHnz[m2] | Matrix permeability for Calico Hills Formation nonwelded zeolitic tuff (UZ) (m2) | lognormal | 9.8e-19, 9.8e-17 | Same as MatrixPermeability_BFw_[m2] | RF | UZFT | 1170 | | | | |
| MatrixPermeability_PPw_[m2] | Matrix permeability for Prow Pass welded tuff | lognormal | 1.3e-18, 1.3e-16 | Same as MatrixPermeability_BFw_[m2] | RF | UZFT | 1171 | | | | |
| MatrixPermeability_UCF_[m2] | Matrix permeability for undifferentiated moderately welded units of Crater Flat Tuff (UZ) | lognormal | 5.4e-19, 5.4e-17 | Same as MatrixPermeability_BFw_[m2] | RF | UZFT | 1172 | | | | |
| MatrixPermeability_BFw_[m2] | Matrix permeability for Bull Frog welded tuff (UZ) (m2) | lognormal | 2.1e-20, 2.1e-18 | Based on the expert judgement of USFIC KTI staff (EXP, OBS), drawing from information documented by Bechtel SAIC | RF | UZFT | 1173 | | | | |
| MatrixPermeability_UFZ_[m2] | Matrix permeability for unsaturated fault zone (UZ) (m2) | lognormal | 1.8e-19, 1.8e-16 | Same as MatrixPermeability_BFw_[m2] | RF | UZFT | 1174 | | | | Besides sampled Kas, most important terms in calculating Rfs |
| MatrixPorosity_TSw_ | Matrix porosity for Topopah Springs | constant | 0.08 | Same as MatrixPorosity_BFw_ | RF | UZFT | 1175 | | | | |
| MatrixPorosity_CHnv | Matrix porosity for Calico Hills Formation nonwelded vitric (UZ) | constant | 0.32 | Same as MatrixPorosity_BFw_ | RF | UZFT | 1176 | | | | |
| MatrixPorosity_CHnz | Matrix porosity for Calico Hills Formation nonwelded zeolitic (UZ) | constant | 0.24 | Same as MatrixPorosity_BFw_ | RF | UZFT | 1177 | | | | |

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| MatrixPorosity_PPw_ | Matrix porosity for Prow Pass welded (UZ) | constant | 0.25 | Same as MatrixPorosity_BFw_ | RF | UZFT | 1178 | | | | |
| MatrixPorosity_UCF_ | Matrix porosity for Upper Crater Flat undifferentiated (UZ) | constant | 0.22 | Same as MatrixPorosity_BFw_ | RF | UZFT | 1179 | | | | |
| MatrixPorosity_BFw_ | Matrix porosity for Bullfrog welded (UZ) | constant | 0.10 | Constant because measured variations are small; data averages | RF | UZFT | 1180 | | | | |
| MatrixPorosity_UFZ_ | Matrix porosity for Unsaturated Fault | constant | 0.12 | Same as MatrixPorosity_BFw_ | RF | UZFT | 1181 | | | | |
| MatrixBeta_TSw_ | Matrix van Genuchten beta parameter for Topopah | constant | 1.9 | Same as MatrixBeta_BFw_ | RF | UZFT | 1182 | | | | |
| MatrixBeta_CHnv | Matrix van Genuchten beta parameter for Calico Hills—nonwelded | constant | 1.3 | Same as MatrixBeta_BFw_ | RF | UZFT | 1183 | | | | |
| MatrixBeta_CHnz | Matrix van Genuchten beta parameter for Calico Hills—nonwelded zeolitic (UZ | constant | 1.3 | Same as MatrixBeta_BFw_ | RF | UZFT | 1184 | | | | |
| MatrixBeta_PPw_ | Matrix van Genuchten beta parameter for Prow Pass—welded (UZ) | constant | 1.5 | Same as MatrixBeta_BFw_ | RF | UZFT | 1185 | | | | |
| MatrixBeta_UCF_ | Matrix van Genuchten beta parameter for Upper Crater Flat | constant | 2.1 | Same as MatrixBeta_BFw_ | RF | UZFT | 1186 | | | | |
| MatrixBeta_BFw_ | Matrix van Genuchten beta parameter for Bullfrog—welded (UZ) | constant | 2.5 | Constant because uncertainty is unimportant compared with uncertainties in matrix permeability; | RF | UZFT | 1187 | | | | |
| MatrixBeta_UFZ_ | Matrix van Genuchten beta parameter for Unsaturated Fault Zone | constant | 2.3 | Same as MatrixBeta_BFw_ | RF | UZFT | 1188 | | | | |
| FracturePermeability_TSw_[m2] | Bulk fracture permeability (m2) of Topopah Spring welded | lognormal | 1.1e-14, 1.1e-10 | Same as FracturePermeability_BFw_[m2] | RF | UZFT | 1203 | | | | |
| FracturePermeability_CHnv[m2] | Bulk fracture permeability (m2) of Calico Hills Formation nonwelded vitric tuff | lognormal | 4.1e-16, 4.1e-12 | Same as FracturePermeability_BFw_[m2] | RF | UZFT | 1204 | | | | |
| FracturePermeability_CHnz[m2] | Bulk fracture permeability (m2) of Calico Hills Formation nonwelded zeolitic tuff | lognormal | 4.1e-16, 4.1e-12 | Same as FracturePermeability_BFw_[m2] | RF | UZFT | 1205 | | | | |
| FracturePermeability_PPw_[m2] | Bulk fracture permeability (m2) of Prow Pass Tuff welded | lognormal | 2.2e-15, 2.2e-11 | Same as FracturePermeability_BFw_[m2] | RF | UZFT | 1206 | | | | |
| FracturePermeability_UCF_[m2] | Bulk fracture permeability (m2) of Undifferentiated Crater Flat moderately welded | lognormal | 2.5e-16, 2.5e-12 | Same as FracturePermeability_BFw_[m2] | RF | UZFT | 1207 | | | | |
| FracturePermeability_BFw_[m2] | Bulk fracture permeability (m2) of Bullfrog welded tuff (UZ) | lognormal | 4.3e-15, 4.3e-11 | Based on the expert judgement of USFIC staff drawing from information documented by Bechtel | RF | UZFT | 1208 | | | | |
| FracturePermeability_UFZ_[m2] | Bulk fracture permeability (m2) of unsaturated fault zone | lognormal | 1.0e-11, 1.0e-13 | Same as FracturePermeability_BFw_[m2] | RF | UZFT | 1209 | | | | |
| FracturePorosity_TSw_ | Fracture porosity of Topopah Springs | loguniform | 2.3e-3, 5.8e-2 | Same as FracturePorosity_BFw_ | RF | UZFT | 1210 | | | | |
| FracturePorosity_CHnv | Fracture porosity of Calico Hills Formation nonwelded vitric (UZ) | loguniform | 2.3e-4, 5.7e-3 | Same as FracturePorosity_BFw_ | RF | UZFT | 1211 | | | | |
| FracturePorosity_CHnz | Fracture porosity of Calico Hills Formation nonwelded zeolitic (UZ) | loguniform | 1.5e-4, 3.8e-3 | Same as FracturePorosity_BFw_ | RF | UZFT | 1212 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
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| FracturePorosity_PPw_ | Fracture porosity of Prow Pass welded (UZ) | loguniform | 1.9e-4, 4.9e-3 | Same as FracturePorosity_BFw_ | RF | UZFT | 1213 | | | | |
| FracturePorosity_UCF_ | Fracture porosity of Undifferentiated Crater Flat moderately welded | loguniform | 7.4e-5, 1.9e-3 | Same as FracturePorosity_BFw_ | RF | UZFT | 1214 | | | | |
| FracturePorosity_BFw_ | Fracture porosity of Bullfrog welded (UZ) | loguniform | 1.9e-4, 4.9e-3 | Best estimate of the USFIC team based on mean values from DOE estimates for drift-scale model in | RF | UZFT | 1215 | | | | |
| FracturePorosity_UFZ_ | Fracture porosity of Unsaturated Fault Zone | loguniform | 1.0e-3, 1.0e-2 | Same as FracturePorosity_BFw_ | RF | UZFT | 1216 | | | | |
| FractureBeta_TSw_ | van Genuchten beta parameter for Topopah Spring welded (UZ) | constant | 2.7 | Same as FractureBeta_BFw_ | RF | UZFT | 1217 | | | | |
| FractureBeta_CHnv | van Genuchten beta parameter for Calico Hills nonwelded vitric | constant | 2.7 | Same as FractureBeta_BFw_ | RF | UZFT | 1218 | | | | |
| FractureBeta_CHnz | van Genuchten beta parameter for Calico Hills nonwelded zeolitic | constant | 2.7 | Same as FractureBeta_BFw_ | RF | UZFT | 1219 | | | | |
| FractureBeta_PPw_ | van Genuchten beta parameter for Prow Pass welded (UZ) | constant | 2.7 | Same as FractureBeta_BFw_ | RF | UZFT | 1220 | | | | |
| FractureBeta_UCF_ | van Genuchten beta parameter for Undifferentiated Crater Flat (UZ) | constant | 2.7 | Same as FractureBeta_BFw_ | RF | UZFT | 1221 | | | | |
| FractureBeta_BFw_ | van Genuchten beta parameter for Bullfrog welded (UZ) | constant | 2.7 | Based on expert judgement and closely linked with related parameters to yield a consistent representation of observations, | RF | UZFT | 1222 | | | | |
| FractureBeta_UFZ_ | van Genuchten beta parameter for Unsaturated Fault Zone | constant | 2.7 | Same as FractureBeta_BFw_ | RF | UZFT | 1223 | | | | |
| FractureAperture_BFw_[ | | constant | 1.0e-4 | | RF | UZFT | 1224 | McMurry | | | |
| FractureAperture_CHnv[ | | constant | 1.0e-4 | | RF | UZFT | 1225 | McMurry | | | |
| FractureAperture_CHnz[ | | constant | 1.0e-4 | | RF | UZFT | 1226 | McMurry | | | |
| FractureAperture_PPw_[ | | constant | 1.0e-4 | | RF | UZFT | 1227 | McMurry | | | |
| FractureAperture_TSw_[ | | constant | 1.0e-4 | | RF | UZFT | 1228 | McMurry | | | |
| FractureAperture_UCF_[ | | constant | 1.0e-4 | | RF | UZFT | 1229 | McMurry | | | |
| FractureAperture_UFZ_[ | | constant | 1.0e-4 | | RF | UZFT | 1230 | McMurry | | | |
| TSw_Thickness_1SubArea[m] | Topopah Spring-welded thickness Subarea1 (m) | constant | 100.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1276 | | | | Will thicknesses need to be modified if footprint is changed? |
| CHnvThickness_1SubArea[m] | Subarea1 Calico Hills-nonwelded vitric thickness (m) (UZ) | constant | 19.0 | Same as CHnvThickness_10SubArea[m] | RF | UZFT | 1277 | | | | |
| CH_Total_Thickness_1SubArea[m] | Subarea1 Calico Hills-total thickness (m) nonwelded vitric and | constant | 91.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1278 | | | | |
| PPw_Thickness_1SubArea[m] | Subarea1 Prow Pass—welded thickness (m) (UZ) | constant | 50.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1279 | | | | |
| UCF_Thickness_1SubArea[m] | Subarea1 Upper Crater Flat thickness (m) (UZ) | constant | 57.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1280 | | | | |
| BFw_Thickness_1SubArea[m] | Subarea1 Bullfrog—welded | constant | 22.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1281 | | | | |
| UFZ_Thickness_1SubArea[m] | Subarea1 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1282 | | | | |
| TSw_Thickness_2SubArea[m] | Subarea2 Topopah Spring—welded thickness (m) (UZ) | constant | 161.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1283 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CHnvThickness_2SubArea[m] | Subarea2 Calico Hills—nonwelded vitric thickness (m) (UZ) | constant | 0.0 | Same as CHnvThickness_10SubArea[m] | RF | UZFT | 1284 | | | | |
| CH_Total_Thickness_2SubArea[m] | Subarea2 Calico Hills—total thickness (m) nonwelded vitric and | constant | 110.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1285 | | | | |
| PPw_Thickness_2SubArea[m] | Subarea2 Prow Pass—welded thickness (m) (UZ) | constant | 50.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1286 | | | | |
| UCF_Thickness_2SubArea[m] | Subarea2 Upper Crater Flat thickness (m) (UZ) | constant | 18.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1287 | | | | |
| BFw_Thickness_2SubArea[m] | Subarea2 Bullfrog—welded | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1288 | | | | |
| UFZ_Thickness_2SubArea[m] | Subarea2 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1289 | | | | |
| TSw_Thickness_3SubArea[m] | Subarea3 Topopah Spring—welded thickness (m) (UZ) | constant | 79.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1290 | | | | |
| CHnvThickness_3SubArea[m] | Subarea3 Calico Hills—nonwelded vitric thickness (m) (UZ) | constant | 24.0 | Same as CHnvThickness_10SubArea[m] | RF | UZFT | 1291 | | | | |
| CH_Total_Thickness_3SubArea[m] | Subarea3 Calico Hills—total thickness (m) nonwelded vitric | constant | 79.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1292 | | | | |
| PPw_Thickness_3SubArea[m] | Subarea3 Prow Pass—welded thickness (m) (UZ) | constant | 52.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1293 | | | | |
| UCF_Thickness_3SubArea[m] | Subarea3 Upper Crater Flat thickness (m) (UZ) | constant | 68.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1294 | | | | |
| BFw_Thickness_3SubArea[m] | Subarea3 Bullfrog—welded | constant | 81.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1295 | | | | |
| UFZ_Thickness_3SubArea[m] | Subarea3 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1296 | | | | |
| TSw_Thickness_4SubArea[m] | Subarea4 Topopah Spring—welded thickness (m) (UZ) | constant | 144.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1297 | | | | |
| CHnvThickness_4SubArea[m] | Subarea4 Calico Hills—nonwelded vitric thickness (m) (UZ) | constant | 17.0 | Same as CHnvThickness_10SubArea[m] | RF | UZFT | 1298 | | | | |
| CH_Total_Thickness_4SubArea[m] | Subarea4 Calico Hills—total thickness (m) nonwelded vitric and | constant | 105.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1299 | | | | |
| PPw_Thickness_4SubArea[m] | Subarea4 Prow Pass—welded thickness (m) (UZ) | constant | 56.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1300 | | | | |
| UCF_Thickness_4SubArea[m] | Subarea4 Upper Crater Flat thickness (m) (UZ) | constant | 61.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1301 | | | | |
| BFw_Thickness_4SubArea[m] | Subarea4 Bullfrog—welded | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1302 | | | | |
| UFZ_Thickness_4SubArea[m] | Subarea4 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1303 | | | | |
| TSw_Thickness_5SubArea[m] | Subarea5 Topopah Spring—welded thickness (m) (UZ) | constant | 58.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1304 | | | | |
| CHnvThickness_5SubArea[m] | Subarea5 Calico Hills—nonwelded vitric thickness (m) (UZ) | constant | 31.0 | Same as CHnvThickness_10SubArea[m] | RF | UZFT | 1305 | | | | |
| CH_Total_Thickness_5SubArea[m] | Subarea5 Calico Hills—total thickness (m) nonwelded vitric and | constant | 80.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1306 | | | | |

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| PPw_Thickness_5SubArea[m] | Subarea5 Prow Pass—welded thickness (m) (UZ) | constant | 65.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1307 | | | | |
| UCF_Thickness_5SubArea[m] | Subarea5 Upper Crater Flat thickness (m) (UZ) | constant | 71.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1308 | | | | |
| BFw_Thickness_5SubArea[m] | Subarea5 Bullfrog—welded | constant | 101.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1309 | | | | |
| UFZ_Thickness_5SubArea[m] | Subarea5 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1310 | | | | |
| TSw_Thickness_6SubArea[m] | Subarea6 Topopah Spring—welded thickness (m) (UZ) | constant | 85.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1311 | | | | |
| CHnvThickness_6SubArea[m] | Subarea6 Calico Hills—nonwelded vitric thickness (m) (UZ) | constant | 37.0 | Same as CHnvThickness_10SubArea[m] | RF | UZFT | 1312 | | | | |
| CH_Total_Thickness_6SubArea[m] | Subarea6 Calico Hills—total thickness (m) nonwelded vitric and | constant | 95.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1313 | | | | |
| PPw_Thickness_6SubArea[m] | Subarea6 Prow Pass—welded thickness (m) (UZ) | constant | 66.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1314 | | | | |
| UCF_Thickness_6SubArea[m] | Subarea6 Upper Crater Flat thickness (m) (UZ) | constant | 81.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1315 | | | | |
| BFw_Thickness_6SubArea[m] | Subarea6 Bullfrog—welded | constant | 51.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1316 | | | | |
| UFZ_Thickness_6SubArea[m] | Subarea6 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1317 | | | | |
| TSw_Thickness_7SubArea[m] | Subarea7 Topopah Spring—welded thickness (m) (UZ) | constant | 138.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1318 | | | | |
| CHnvThickness_7SubArea[m] | Subarea7 Calico Hills—nonwelded vitric thickness (m) (UZ) | constant | 44.0 | Same as CHnvThickness_10SubArea[m] | RF | UZFT | 1319 | | | | |
| CH_Total_Thickness_7SubArea[m] | Subarea7 Calico Hills—total thickness (m) nonwelded vitric and | constant | 107.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1320 | | | | |
| PPw_Thickness_7SubArea[m] | Subarea7 Prow Pass—welded thickness (m) (UZ) | constant | 66.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1321 | | | | |
| UCF_Thickness_7SubArea[m] | Subarea7 Upper Crater Flat thickness (m) (UZ) | constant | 67.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1322 | | | | |
| BFw_Thickness_7SubArea[m] | Subarea7 Bullfrog—welded | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1323 | | | | |
| UFZ_Thickness_7SubArea[m] | Subarea7 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1324 | | | | |
| TSw_Thickness_8SubArea[m] | Subarea8 Topopah Spring—welded thickness (m) (UZ) | constant | 163.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1325 | | | | |
| CHnvThickness_8SubArea[m] | Subarea8 Calico Hills—nonwelded vitric thickness (m) (UZ) | constant | 0.0 | Same as CHnvThickness_10SubArea[m] | RF | UZFT | 1326 | | | | |
| CH_Total_Thickness_8SubArea[m] | Subarea8 Calico Hills—total thickness (m) nonwelded vitric | constant | 120.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1327 | | | | |
| PPw_Thickness_8SubArea[m] | Subarea8 Prow Pass—welded thickness (m) | constant | 25.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1328 | | | | |
| UCF_Thickness_8SubArea[m] | Subarea8 Upper Crater Flat thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1329 | | | | |
| BFw_Thickness_8SubArea[m] | Subarea8 Bullfrog—welded | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1330 | | | | |

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| UFZ_Thickness_8SubArea[m] | Subarea8 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1331 | | | | |
| TSw_Thickness_9SubArea[m] | Subarea9 Topopah Spring—welded thickness (m) (UZ) | constant | 91.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1332 | | | | |
| CHnvThickness_9SubArea[m] | Subarea9 Calico Hills—nonwelded vitric thickness (m) (UZ) | constant | 0.0 | Same as CHnvThickness_10SubArea[m] | RF | UZFT | 1333 | | | | |
| CH_Total_Thickness_9SubArea[m] | Subarea9 Calico Hills—total thickness (m) nonwelded vitric and | constant | 138.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1334 | | | | |
| PPw_Thickness_9SubArea[m] | Subarea9 Prow Pass—welded thickness (m) | constant | 28.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1335 | | | | |
| UCF_Thickness_9SubArea[m] | Subarea9 Upper Crater Flat thickness (m) (UZ) | constant | 9.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1336 | | | | |
| BFw_Thickness_9SubArea[m] | Subarea9 Bullfrog—welded | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1337 | | | | |
| UFZ_Thickness_9SubArea[m] | Subarea9 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1338 | | | | |
| TSw_Thickness_10SubArea[m] | Subarea10 Topopah Spring—welded thickness (m) (UZ) | constant | 138.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1339 | | | | |
| CHnvThickness_10SubArea[m] | Subarea10 Calico Hills—nonwelded vitric thickness (m) (UZ) | constant | 0.0 | Derived directly from the Geological Framework Model 3.1 (CRWMS M&O, 1999) using center of subarea. Chnv_Thickness derived from interpolation of borehole vitric and zeolitic data circa 2001. See Scientific Notebook #273, pages 1-67. Uncertainty in vitric versus zeolitic thickness needs to be | RF | UZFT | 1340 | | | | |
| CH_Total_Thickness_10SubArea[m] | Subarea10 Calico Hills—total thickness (m) nonwelded vitric and zeolitic (UZ) | constant | 137.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1341 | | | | |
| PPw_Thickness_10SubArea[m] | Subarea10 Prow Pass—welded thickness (m) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1342 | | | | |
| UCF_Thickness_10SubArea[m] | Subarea10 Upper Crater Flat thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1343 | | | | |
| BFw_Thickness_10SubArea[m] | Subarea10 Bullfrog—welded thickness (m) (UZ) | constant | 0.0 | Derived directly from the Geological Framework Model 3.1 (CRWMS M&O, 1999) using center of subarea, EDA II design for repository elevation (varies north to south), and current best estimate of water table map of USFIC team in 2001. All thicknesses should be updated to reflect license application repository and | RF | UZFT | 1344 | | | | |
| UFZ_Thickness_10SubArea[m] | Subarea10 Unsaturated Fracture Zone thickness (m) (UZ) | constant | 0.0 | Same as BFw_Thickness_10SubArea[m] | RF | UZFT | 1345 | | | | |
| SurfaceAreaFactor_TSw_ | | constant | 590.0 | Same as | SP | UZFT | 1231 | | | | |
| SurfaceAreaFactor_CHnv | | constant | 590.0 | Same as | SP | UZFT | 1232 | | | | |
| SurfaceAreaFactor_CHnz | | constant | 590.0 | Same as | SP | UZFT | 1233 | | | | |
| SurfaceAreaFactor_PPw_ | | constant | 590.0 | Same as | SP | UZFT | 1234 | | | | |
| SurfaceAreaFactor_UCF_ | | constant | 590.0 | Same as | SP | UZFT | 1235 | | | | |
| SurfaceAreaFactor_BFw_[] | | constant | 590.0 | Dervied using site-specific data from Contardi et al. (2001) | SP | UZFT | 1236 | | | | |
| SurfaceAreaFactor_UFZ_ | | constant | 590.0 | Same as | SP | UZFT | 1237 | | | | |

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| FractureColloidRetardationFactor_TSw_[m3/kg] | None | usersupplied pwisecdf | 15 1.0, 0.0, 1.01, 0.01, 1.5, 0.04, 2.0, 0.06, 4.0, 0.12, 6.0, 0.15, 10.23, 0.25, 14.86, 0.35, 26.0, 0.5, 34.35, 0.6, 45.39, | Same as FractureColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1238 | | | | |
| FractureColloidRetardationFactor_CHnv[m3/kg] | | usersupplied pwisecdf | 15 1.0, 0.0, 1.01, 0.01, 1.5, 0.04, 2.0, 0.06, 4.0, 0.12, 6.0, 0.15, 10.23, 0.25, 14.86, 0.35, 26.0, 0.5, 34.35, 0.6, 45.39, | Same as FractureColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1239 | | | | |
| FractureColloidRetardationFactor_CHnz[m3/kg] | None | usersupplied pwisecdf | 15 1.0, 0.0, 1.01, 0.01, 1.5, 0.04, 2.0, 0.06, 4.0, 0.12, 6.0, 0.15, 10.23, 0.25, 14.86, 0.35, 26.0, 0.5, 34.35, 0.6, 45.39, | Same as FractureColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1240 | | | | |
| FractureColloidRetardationFactor_PPw_[m3/kg] | None | usersupplied pwisecdf | 15 1.0, 0.0, 1.01, 0.01, 1.5, 0.04, 2.0, 0.06, 4.0, 0.12, 6.0, 0.15, 10.23, 0.25, 14.86, 0.35, 26.0, 0.5, 34.35, 0.6, 45.39, | Same as FractureColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1241 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FractureColloidRetardationFactor_UCF_[m3/kg] | None | usersupplied pwisecdf | 15 1.0, 0.0, 1.01, 0.01, 1.5, 0.04, 2.0, 0.06, 4.0, 0.12, 6.0, 0.15, 10.23, 0.25, 14.86, 0.35, 26.0, 0.5, 34.35, 0.6, 45.39, | Same as FractureColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1242 | | | | |
| FractureColloidRetardationFactor_BFw_[m3/kg] | Retardation factor for colloids - Bull Frog welded | usersupplied pwisecdf | 15 1.0, 0.0, 1.01, 0.01, 1.5, 0.04, 2.0, 0.06, 4.0, 0.12, 6.0, 0.15, 10.23, 0.25, 14.86, 0.35, 26.0, 0.5, 34.35, 0.6, 45.39, | Best available information; taken from DOE distribution (ANL-NBS-HS-000031 Rev 1, Table 7). Linearly interpolated in Log space between tabulated values | SP | UZFT | 1243 | | | | |
| FractureColloidRetardationFactor_UFZ_[m3/kg] | None | usersupplied pwisecdf | 15 1.0, 0.0, 1.01, 0.01, 1.5, 0.04, 2.0, 0.06, 4.0, 0.12, 6.0, 0.15, 10.23, 0.25, 14.86, 0.35, 26.0, 0.5, 34.35, 0.6, 45.39, | Same as FractureColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1244 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MatrixColloidRetardationFactor_TSw_[m3/kg] | | usersupplied pwisecdf | 20 1.0, 0.0, 1.01, 0.01, 1.5, 0.07, 2.0, 0.12, 4.0, 0.22, 6.0, 0.29, 8.0, 0.33, 14.4, 0.4, 22.14, 0.45, 34.0, 0.5, 56.15, 0.55, 92.85, 0.6, 153.5, 0.65, 253.9, 0.7, | Same as MatrixColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1245 | | | | |
| MatrixColloidRetardationFactor_CHnv[m3/kg] | | usersupplied pwisecdf | 20 1.0, 0.0, 1.01, 0.01, 1.5, 0.07, 2.0, 0.12, 4.0, 0.22, 6.0, 0.29, 8.0, 0.33, 14.4, 0.4, 22.14, 0.45, 34.0, 0.5, 56.15, 0.55, 92.85, 0.6, 153.5, 0.65, 253.9, 0.7, | Same as MatrixColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1246 | | | | |
| MatrixColloidRetardationFactor_CHnz[m3/kg] | | usersupplied pwisecdf | 20 1.0, 0.0, 1.01, 0.01, 1.5, 0.07, 2.0, 0.12, 4.0, 0.22, 6.0, 0.29, 8.0, 0.33, 14.4, 0.4, 22.14, 0.45, 34.0, 0.5, 56.15, 0.55, 92.85, 0.6, 153.5, 0.65, 253.9, 0.7, | Same as MatrixColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1247 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MatrixColloidRetardationFactor_PPw_[m3/kg] | | usersupplied pwisecdf | 20 1.0, 0.0, 1.01, 0.01, 1.5, 0.07, 2.0, 0.12, 4.0, 0.22, 6.0, 0.29, 8.0, 0.33, 14.4, 0.4, 22.14, 0.45, 34.0, 0.5, 56.15, 0.55, 92.85, 0.6, 153.5, 0.65, 253.9, 0.7, | Same as MatrixColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1248 | | | | |
| MatrixColloidRetardationFactor_UCF_[m3/kg] | | usersupplied pwisecdf | 20 1.0, 0.0, 1.01, 0.01, 1.5, 0.07, 2.0, 0.12, 4.0, 0.22, 6.0, 0.29, 8.0, 0.33, 14.4, 0.4, 22.14, 0.45, 34.0, 0.5, 56.15, 0.55, 92.85, 0.6, 153.5, 0.65, 253.9, 0.7, | Same as MatrixColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1249 | | | | |
| MatrixColloidRetardationFactor_BFw_[m3/kg] | | usersupplied pwisecdf | 20 1.0, 0.0, 1.01, 0.01, 1.5, 0.07, 2.0, 0.12, 4.0, 0.22, 6.0, 0.29, 8.0, 0.33, 14.4, 0.4, 22.14, 0.45, 34.0, 0.5, 56.15, 0.55, 92.85, 0.6, 153.5, 0.65, 253.9, 0.7, | Best available information from ANL-NBS-HS-000031 Rev 1, Table 8. Linearly interpolated in Log space between tabulated values | SP | UZFT | 1250 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MatrixColloidRetardationFactor_UFZ_[m3/kg] | | usersupplied pwisecdf | 20 1.0, 0.0, 1.01, 0.01, 1.5, 0.07, 2.0, 0.12, 4.0, 0.22, 6.0, 0.29, 8.0, 0.33, 14.4, 0.4, 22.14, 0.45, 34.0, 0.5, 56.15, 0.55, 92.85, 0.6, 153.5, 0.65, 253.9, 0.7, | Same as MatrixColloidRetardationFactor_BFw_[m3/kg] | SP | UZFT | 1251 | | | | |
| FractureColloidConcentration_TSw_[kg/m3] | | usersupplied pwisecdf | 16 1.0e-6, 0.0, 2.51e-6, 0.1, 6.31e-6, 0.2. 1.58e-5, 0.3, 3.98e-5, 0.4, 1.0e-4, 0.5, 2.51e-4, 0.6, 6.31e-4, 0.7, 1.0e-3, 0.75, | Same as FractureColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1252 | | | | |
| FractureColloidConcentration_CHnv[kg/m3] | | usersupplied pwisecdf | 16 1.0e-6, 0.0, 2.51e-6, 0.1, 6.31e-6, 0.2. 1.58e-5, 0.3, 3.98e-5, 0.4, 1.0e-4, 0.5, 2.51e-4, 0.6, 6.31e-4, 0.7, 1.0e-3, 0.75, | Same as FractureColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1253 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FractureColloidConcentration_Chnz[kg/m3] | | usersupplied pwisecdf | 16 1.0e-6, 0.0, 2.51e-6, 0.1, 6.31e-6, 0.2. 1.58e-5, 0.3, 3.98e-5, 0.4, 1.0e-4, 0.5, 2.51e-4, 0.6, 6.31e-4, 0.7, 1.0e-3, 0.75, | Same as FractureColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1254 | | | | |
| FractureColloidConcentration_PPw_[kg/m3] | | usersupplied pwisecdf | 16 1.0e-6, 0.0, 2.51e-6, 0.1, 6.31e-6, 0.2. 1.58e-5, 0.3, 3.98e-5, 0.4, 1.0e-4, 0.5, 2.51e-4, 0.6, 6.31e-4, 0.7, 1.0e-3, 0.75, | Same as FractureColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1255 | | | | |
| FractureColloidConcentration_UCF_[kg/m3] | | usersupplied pwisecdf | 16 1.0e-6, 0.0, 2.51e-6, 0.1, 6.31e-6, 0.2. 1.58e-5, 0.3, 3.98e-5, 0.4, 1.0e-4, 0.5, 2.51e-4, 0.6, 6.31e-4, 0.7, 1.0e-3, 0.75, | Same as FractureColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1256 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FractureColloidConcentration_BFw_[kg/m3] | | usersupplied pwisecdf | 16 1.0e-6, 0.0, 2.51e-6, 0.1, 6.31e-6, 0.2. 1.58e-5, 0.3, 3.98e-5, 0.4, 1.0e-4, 0.5, 2.51e-4, 0.6, 6.31e-4, 0.7, 1.0e-3, 0.75, | Best available information; taken from MDL-EBS-PA-000004 Rev 0, Table 5, linearly interpolated in log space | SP | UZFT | 1257 | | | | |
| FractureColloidConcentration_UFZ_[kg/m3] | | usersupplied pwisecdf | 16 1.0e-6, 0.0, 2.51e-6, 0.1, 6.31e-6, 0.2. 1.58e-5, 0.3, 3.98e-5, 0.4, 1.0e-4, 0.5, 2.51e-4, 0.6, 6.31e-4, 0.7, 1.0e-3, 0.75, | Same as FractureColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1258 | | | | |
| MatrixColloidConcentration_TSw_[kg/m3] | | usersupplied pwisecdf | 16 1.6e-7, 0.0, 3.02e-7, 0.1, 1.01e-6, 0.2, 2.53e-6, 0.3, 6.37e-6, 0.4, 1.6e-5, 0.5, 4.02e-5, 0.6, 1.01e-4, 0.7, 1.6e-4, 0.75, 3.44e-4, | Same as MatrixColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1259 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MatrixColloidConcentration_CHnv[kg/m3] | | usersupplied pwisecdf | 16 3.1e-7, 0.0, 7.78e-7, 0.1, 1.96e-6, 0.2, 4.99e-6, 0.3, 1.23e-5, 0.4, 3.1e-5, 0.5, 7.78e-5, 0.6, 1.96e-4, 0.7, 3.1e-4, 0.75, 6.66e-4, | Same as MatrixColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1260 | | | | |
| MatrixColloidConcentration_Chnz[kg/m3] | | usersupplied pwisecdf | 16 1.1e-7, 0.0, 2.768e-7, 0.1, 6.94e-7, 0.2, 1.74e-6, 0.3, 4.38e-6, 0.4, 1.1e-5, 0.5, 2.76e-5, 0.6, 6.94e-5, 0.7, 1.1e-4, 0.75, 2.37e-4, | Same as MatrixColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1261 | | | | |
| MatrixColloidConcentration_PPw_[kg/m3] | | usersupplied pwisecdf | 16 4.1e-7, 0.0, 1.03e-6, 0.1, 2.59e-6, 0.2, 6.48e-6, 0.3, 1.63e-5, 0.4, 4.1e-5, 0.5, 1.03e-4, 0.6, 2.59e-4, 0.7, 4.1e-4, 0.75, 8.81e-4, | Same as MatrixColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1262 | | | | |

| Name | Description | PDF Type | Value(s) | Comments | CNWRA Contact | TPA Section | Order for TPA.INP | Recommended Contact | New Value | Notes | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MatrixColloidConcentration_UCF_[kg/m3] | | usersupplied pwisecdf | 16 3.3e-7, 0.0, 8.28e-7, 0.1, 2.08e-6, 0.2, 5.21e-6, 0.3, 1.31e-5, 0.4, 3.3e-5, 0.5, 8.28e-5, 0.6, 2.08e-4, 0.7, 3.3e-4, 0.75, 7.09e-4, | Same as MatrixColloidConcentration_BFw_[kg/m3] | SP | UZFT | 1263 | | | | |
| MatrixColloidConcentration_BFw_[kg/m3] | | usersupplied pwisecdf | 16 7.1e-8, 0.0, 1.78e-7, 0.1, 4.48e-7, 0.2, 1.22e-6, 0.3, 2.82e-6, 0.4, 7.1e-6, 0.5, 1.78e-5, 0.6, 4.48e-5, 0.7, 7.1e-5, 0.75, 1.53e-4, | Data from MDL-EBS-PA-000004 Rev 0, Table 5 after scaling by a filtration factor | SP | UZFT | 1264 | | | | |
| MatrixColloidConcentration_UFZ_[kg/m3] | | constant | 0.0 | Same as MatrixColloidConcentration_BFw_[k | SP | UZFT | 1265 | | | | |
| InletArea__1SubArea[m2] | Inlet area (m2) - subarea 1 (UZ) (not used) | constant | 5.4e5 | Parameter serves only as a placeholder for NEFTRAN; the | TM | UZFT | 1266 | | | | |
| InletArea__2SubArea[m2] | Inlet area (m2) - subarea 2 (UZ) (not used) | constant | 5.4e5 | Same as InletArea__1SubArea[m2] | TM | UZFT | 1267 | | | | |
| InletArea__3SubArea[m2] | Inlet area (m2) - subarea 3 (UZ) (not used) | constant | 5.4e5 | Same as InletArea__1SubArea[m2] | TM | UZFT | 1268 | | | | |
| InletArea__4SubArea[m2] | Inlet area (m2) - subarea 4 (UZ) (not used) | constant | 5.4e5 | Same as InletArea__1SubArea[m2] | TM | UZFT | 1269 | | | | |
| InletArea__5SubArea[m2] | Inlet area (m2) - subarea 5 (UZ) (not used) | constant | 5.4e5 | Same as InletArea__1SubArea[m2] | TM | UZFT | 1270 | | | | |
| InletArea__6SubArea[m2] | Inlet area (m2) - subarea 6 (UZ) (not used) | constant | 5.4e5 | Same as InletArea__1SubArea[m2] | TM | UZFT | 1271 | | | | |
| InletArea__7SubArea[m2] | Inlet area (m2) - subarea 7 (UZ) (not used) | constant | 5.4e5 | Same as InletArea__1SubArea[m2] | TM | UZFT | 1272 | | | | |
| InletArea__8SubArea[m2] | Inlet area (m2) - subarea 8 (UZ) (not used) | constant | 5.4e5 | Same as InletArea__1SubArea[m2] | TM | UZFT | 1273 | | | | |
| InletArea__9SubArea[m2] | Inlet area (m2) - subarea 9 (UZ) (not used) | constant | 5.4e5 | Same as InletArea__1SubArea[m2] | TM | UZFT | 1274 | | | | |
| InletArea_10SubArea[m2] | Inlet area (m2) - subarea 10 (UZ) (not used) | constant | 5.4e5 | Same as InletArea__1SubArea[m2] | TM | UZFT | 1275 | | | | |
| ** UZFT | | | | | | UZFT | 1000 | | | | |