```
%Parameters081015scal3.m - Reflects updated in vitro metabolism parameter & MMPGL values
                %values as of Aug 2015
%Created from Parameters021811scal.m File of Parameter Values for adult human
%Applies for Model file:  bdcm_inh2.csl

QPC=212.4
DEADSPACE=0.238
RQPCO=0.8

%Blood flows

FQRP=0.75
FQPP=0.25
FQG=0.16
FQL=0.09
FQF=0.05
FQK=0.15
QSKSA=0.58

%Fractional Compartment Volumes

FVBD=0.079
FVART=0.25
FVVEN=0.75
FVRP=0.2
FVPP=0.8
FVL=0.034
FVGI=0.0165
FVF=0.1
FVK=0.004
FSASK=0.75

VLUM=2.1
LSK= 2.0   %Skin thickness in mm, updated value 2/9/11

MWBDCM=164

%Partition Coefficients - Avg M&F recalculated from Pegram et al. Blood:air
%  --- Unless otherwise noted

PBBDCM=15.97        %Blood:air Pegram 2/9/11 avg male & female
PRBDCM=1.93         %RPTG:Blood
PPBDCM=0.78                                     %SPTG:Blood
PSKBDCM=2.91        %Skin:Blood
PWSBDCM=6.25        %Skin:Water (Haddad et al., 2006)
PLBDCM=1.93         %Liver:Blood
PGBDCM=1.93         %Gut:Blood
PFBDCM=33.2         %Fat:Blood
```

```
PKBDCM=2.08          %Kidney:Blood
KBDCM=0.18           %Mass transfer skin (Xu et al., 2002, Table 1, p. 20)

%Metabolism and absorption parameters

%V1CBDCM=41300      %updated VmaxC for cyp pathway 2015
%*********************************************************
%Code added to calculate Vmax for CYP pathway in the model
IVVMAX1 = 17.14  %in vitro vmax (ug/hr-mg MSP)
MMPGL = 52.9    % mg microsomal protein (MSP) per g Liver from Lipscomb et al.,
%*********************************************************VFCBDCM=0.0079   %Re-
calculated 2015 from Ross & Pegram, 2003
KM1BDCM=221
KABDCM=8.3
BIOAVAIL=1
```

```
%scaling_oral.m
%Scenario to run for IVIVE impact on dose metrics after oral exposure
%Created 9/6/12  Modified from SAsetup_oral.m
%Use this file in conjunction with monte carlo analysis files
%Modified to new parameter file on 9/10/14
%Modified to new parameter file on 8/10/15

% Next four stmts suppress output to command window
WESITG = 0;          % 0 = no statistics output
WEDITG = 0;          % 0 = no junk output when model has SCHEDULE stmts
CIEITG = 0;          % 0 = no junk output when state event occurs
CJVITG = 0;          % 0 = no report if Jacobian valid

prepare t cvbdcm cvbdcmppt calvbdcm1 calvbdcmppb aucvenbdcm traml tramkg

%Parameters081414scal2
%Parameters021811scal
%Replace with updated parameter file 8/10/15

Parameters081015scal3

%Various values for ODOSE, turn on/off by comment (%) in or out
%ODOSE = 0.0357      %Equiv dose 70 kg human, single 1/4 L drink 10 ppb water
%ODOSE =  0.1785     %Equiv dose 70 kg human, single 1/4 L drink 50 ppb water
ODOSE = 0.01785      %Equiv dose 70 kg human, single 1/4 L drink 5 ppb, add 8/10/15
%ODOSE = 0.0714            %Equiv dose 70 kg human, single 1/4 L drink 20 ppb, add 8/10/15

%Next 6 lines switch off inhalation and dermal exposure
INH_SWITCH = 0;      % 0 = inhalation off
IDOSE = 0;           % inhalation dose
I_EXPOSR_LENGTH = 0;   % inhalation exposure length, hr

DRML_SWITCH = 0.0;     % 0 = no dermal exposure
DDOSE = 0.0;         % ppm in water for dermal dose
D_EXPOSR_LENGTH=0.0;   % Length of dermal exposure (hr)

CVBDCMI = 0.0000;         % init or bkg level BDCM in ven bd (ug/L)

TSTOP=2.0
POINTS = 200
BW=70
HEIGHT=178
FVF= 0.12

output @Clear @Nciout=10 t cvbdcmppt balbdcm

start @nocallback
```

```
cvmax=max(_cvbdcmppt)
aucvenbdcm1 = max(_aucvenbdcm)
calvbdcmax = max(_calvbdcm1)
TRAML
TRAMKG
plot(_t,_cvbdcmppt, 'sa_oral2.aps')
plot(_t,_traml, 'sa_oral5.aps')
```

```
%scaling_shower.m
%%Scenario to run for IVIVE impact on dose metrics after shower exposure
%Created 9/6/12  Modified from SAsetup_shower.m
%Use this file in conjunction with monte carlo analysis
%modified to new parameter file 9/10/14

% Next four stmts suppress output to command window
WESITG = 0;          % 0 = no statistics output
WEDITG = 0;          % 0 = no junk output when model has SCHEDULE stmts
CIEITG = 0;          % 0 = no junk output when state event occurs
CJVITG = 0;          % 0 = no report if Jacobian valid

prepare t cvbdcm cvbdcmppt calvbdcm1 calvbdcmppb aucvenbdcm traml tramkg

%Change to updated parameter file on 8/11/15
Parameters081015scal3
%Parameters021811scal

%DDOSE = 0.00
%DDOSE = 0.005                                                    % PPM in water (5 ppb)
%DDOSE = 0.010          % PPM in water (10 ppb)
DDOSE = 0.020                                                    % PPM in water (20 ppb)
%DDOSE = 0.050          % PPM in water (50 ppb)
D_EXPOSR_LENGTH = 0.167;     % length of dermal exposure in hours
DRML_SWITCH = 1.0;         % 1 =  dermal exposure

ODOSE = 0.0;           % oral dose, ug/kg BW

%IDOSE calculated based on airborne concentrations of BDCM were calculated on the basis of the unit
%    exposure concentration (UEC, i.e. ?ug/m3 per ug/l) relationships for BDCM reported
%    by Kerger et al. (2000) in their field studies of residential showering and bathing.
%Note: [??g/L] in gas systems IS NOT equal to [ppbV], nor is [mg/L] in gas systems equal to [ppmV].
%   Each of these conversions is dependent upon the molecular weight of the contaminant
%   and the temperature and pressure of the system.
%IDOSE = 0.00
%IDOSE = 0.001344;                                    % inhalation dose (ppm) equivalent to 9
ug/m^3 at water conc 5 ppb
%IDOSE = 0.002688;       % inhalation dose (ppm) equivaent to 18 ug/m^3  at water conc 10 ppb
IDOSE = 0.005376;                                    % inhalation dose (ppm) equivalent to 36 ug/m^3 at
water conc 20 ppb
%IDOSE = 0.013440;       % inhalation dose (ppm) equivalent to 90 ug/m^3 at water conc 50 ppb
INH_SWITCH = 1.0;                                    % inhalation on
I_EXPOSR_LENGTH = 0.167;    % Length of inhalation exposure (hr)

CVBDCMI = 0.0000;          % init or bkg level BDCM in ven bd (ug/L)

TSTOP=2
POINTS =200
```

```
BW=70
HEIGHT=178
FVF= 0.12
FSASK = 0.5

output @Clear @Nciout=10 t cvbdcmppt balbdcm

start @nocallback

cmaxcv = max(_cvbdcmppt)
aucvenbdcm1 = max(_aucvenbdcm)
calvbdcmax = max(_calvbdcm1)
TRAML
TRAMKG

plot(_t,_cvbdcmppt, 'sa_shower.aps')
plot(_t,_calvbdcm1, 'calv_shwr.aps')
```

```
% M file automatically generated by acslXtreme on Tuesday, August 11, 2015 at 3:18:40 PM
cd 'C:\BDCM\bdcm6'

% Execute pre-optimization script
use("scaling_oral")

% Monte Carlo Analysis Run :
% Uses simulation : BDCM_inh2.dll
disp("------------------------------")

% prepare any variables for which time histories need to be captured
prepare t
prepare cvbdcmppt
prepare calvbdcm1

% create the arrays into which output will be accumulated
__aucvenbdcm_fv__ = [];
__cvbdcmppt_th__ = [];
__traml_fv__ = [];
__calvbdcm1_th__ = [];

% create the arrays into which inputs will be accumulated
__fvl__ = [];
__mmpgl__ = [];

% perform iterations
seedrnd(1234567890, 123456789);
numIts = 10000
colcount = 0;
for iter = [1 : numIts]
        disp(sprintf("MC Iteration #%d of %d", iter, numIts));
        disp("----------------------------");
        % set the inputs
        FVL = 0 + 1 * normrnd(0.0244, 0.0109, 0.0136, 0.0415);
        __fvl__ = [__fvl__ FVL];
        MMPGL = 0 + 1 * lognrnd(3.9684, 0.3893);
        __mmpgl__ = [__mmpgl__ MMPGL];

        % perform the simulation run
        !! start /nc

        % collect the outputs for this iteration
        % histograms: just append the current value to the end of the array
        % time histories: each time history will be a new column in the output array
        % just append the time history to the end of the array
        __aucvenbdcm_fv__ = [__aucvenbdcm_fv__ AUCVENBDCM];
        __cvbdcmppt_th__ = addcolsj(__cvbdcmppt_th__,_cvbdcmppt, @Justification = 'begin');
        __traml_fv__ = [__traml_fv__ TRAML];
```

```
        __calvbdcm1_th__ = addcolsj(__calvbdcm1_th__,_calvbdcm1, @Justification = 'begin');
end

% generate output plots
% one plot for each output

% a good default number of bins for a histogram is the
% square root of the sample size
zznumbins = sqrt(10000);

% generate histogram
zzmin = min(__aucvenbdcm_fv__);
zzmax = max(__aucvenbdcm_fv__);
zzdelta = (zzmax - zzmin) / zznumbins;
zzbins = [zzmin : zzdelta : zzmax];
hist(__aucvenbdcm_fv__, zzbins, 'mc_aucvenbdcm_fv.aps');

% generate time history plot
% by default, plot the average and the +/- 3 sigma curves
%%%zzmean = mean(__cvbdcmppt_th__')';
%%%zzstddev  = std(__cvbdcmppt_th__')';
%%%plot(_t, zzmean, _t, zzmean + 3*zzstddev, _t, zzmean - 3*zzstddev, 'mc_cvbdcmppt_th.aps');

%!!! Modified by EMK 8/11/15, replaces the above lines comment out
%!!! Assumption of normally distributed predictions fails here
%!!! Transform to log space to compute mean/std (i.e., assume lognormal distribution),
%!!! then convert back before plotting
% Log transform the predictions before taking mean and stddev
zzmean = mean(log(__cvbdcmppt_th__')');
zzstddev  = std(log(__cvbdcmppt_th__')');
% transform back to linear space before plotting
plot(_t, exp(zzmean), _t, exp(zzmean + 3*zzstddev), _t, exp(zzmean - 3*zzstddev),
'mc_cvbdcmppt_th.aps');

% generate histogram
zzmin = min(__traml_fv__);
zzmax = max(__traml_fv__);
zzdelta = (zzmax - zzmin) / zznumbins;
zzbins = [zzmin : zzdelta : zzmax];
hist(__traml_fv__, zzbins, 'mc_traml_fv.aps');

% generate time history plot
% by default, plot the average and the +/- 3 sigma curves
%%%zzmean = mean(__calvbdcm1_th__')';
%%%zzstddev  = std(__calvbdcm1_th__')';
%%%plot(_t, zzmean, _t, zzmean + 3*zzstddev, _t, zzmean - 3*zzstddev, 'mc_calvbdcm1_th.aps');

%!!! Modified by EMK 8/11/15, replaces the above lines comment out
```

```
%!!! Assumption of normally distributed predictions fails here
%!!! Transform to log space to compute mean/std (i.e., assume lognormal distribution),
%!!! then convert back before plotting
% Log transform the predictions before taking mean and stddev

zzmean = mean(log(__calvbdcm1_th__)')';
zzstddev  = std(log(__calvbdcm1_th__)')';
plot(_t, exp(zzmean), _t, exp(zzmean + 3*zzstddev), _t, exp(zzmean - 3*zzstddev),
'mc_calvbdcm_th.aps');



%This code generates tables for report
disp("--------------------------------")
set @Preference = NoBackSlashEscapes
uiHandle = uifigure;
rtbHandle = uicontrol(uiHandle, "RichTextBox");
uiset(uiHandle, rtbHandle, "Dock", "Fill");
uiset(uiHandle, rtbHandle, "ReadOnly", 1);
uiset(uiHandle, rtbHandle, "WordWrap", 0);
uiset(uiHandle, rtbHandle, "BackColor", "White");
uitext = "";
uitext = strcat(uitext, "{\rtf1\ansi\ansicpg1252\deff0\deflang1033{\fonttbl{\f0\fswiss\fprq2\fcharset0
Arial;}{\f1\fswiss\fcharset0 Arial;}} ");
uitext = strcat(uitext, "{\colortbl ;\red51\green51\blue153;\red0\green0\blue0;} ");
uitext = strcat(uitext, "\viewkind4\uc1\pard\li270\cf1\f0\fs28\par ");
uitext = strcat(uitext, "Monte Carlo Analysis Results\par ");
uitext = strcat(uitext, "\cf0\fs22
_____\par ");
uitext = strcat(uitext, "\par ");
uitext = strcat(uitext, "\fs24 Date:\tab\tab\cf1 Tuesday, August 11, 2015 at 3:18:40 PM\tab\cf0\par ");
uitext = strcat(uitext, "Script File:\tab\tab\cf1C:\\BDCM\\bdcm6\\monty1oral.m\par ");
uitext = strcat(uitext, "\cf2 Simulation DLL\cf0 : \tab\cf1 BDCM_inh2.dll\par ");

uitext = strcat(uitext, "\cf2 Num. Iterations\cf0 : \tab\cf1 10000\par ");
uitext = strcat(uitext, "\cf2\par Input Parameter Statistics: \par");
uitext = strcat(uitext, "\cf0\fs22\par ");
uitext = strcat(uitext, "\trowd\trgaph10\trleft210 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs\clbrdrr\brdrw30\brdrs \cellx2800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx5300 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx7800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx10300 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx12800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx15300 ");
uitext = strcat(uitext, "\pard\intbl\b\fs20");
uitext = strcat(uitext, "   Input\cell");
uitext = strcat(uitext, "   Distr.\cell");
uitext = strcat(uitext, "   Min\cell");
```

```
uitext = strcat(uitext, "   Max\cell");
uitext = strcat(uitext, "   Mean\cell");
uitext = strcat(uitext, "   Std. Dev.\cell");
uitext = strcat(uitext, "\row ");

zzmin = min(__fvl__);
zzmax = max(__fvl__);
zzmean = mean(__fvl__);
zzstddev  = std(__fvl__);
uitext = strcat(uitext, "\trowd\trgaph10");
uitext = strcat(uitext, "\trleft210\clbrdrr\brdrw30\brdrs \cellx2800");
uitext = strcat(uitext, "\cellx5300");
uitext = strcat(uitext, "\cellx7800");
uitext = strcat(uitext, "\cellx10300");
uitext = strcat(uitext, "\cellx12800");
uitext = strcat(uitext, "\cellx15300");
uitext = strcat(uitext, "\pard\intbl\b");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "fvl");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "  \b0 ");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "Normal");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmin)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmax)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmean)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzstddev)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "\row ");

zzmin = min(__mmpgl__);
zzmax = max(__mmpgl__);
zzmean = mean(__mmpgl__);
zzstddev  = std(__mmpgl__);
uitext = strcat(uitext, "\trowd\trgaph10");
uitext = strcat(uitext, "\trleft210\clbrdrr\brdrw30\brdrs \cellx2800");
uitext = strcat(uitext, "\cellx5300");
uitext = strcat(uitext, "\cellx7800");
uitext = strcat(uitext, "\cellx10300");
uitext = strcat(uitext, "\cellx12800");
```

```
uitext = strcat(uitext, "\cellx15300");
uitext = strcat(uitext, "\pard\intbl\b");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "mmpgl");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "  \b0 ");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "LogNormal");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmin)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmax)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmean)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzstddev)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "\row ");
uitext = strcat(uitext, "\pard\li270\fs22\par ");
uitext = strcat(uitext, "\cf2\fs24\par Final Value Ouput Statistics: \par");
uitext = strcat(uitext, "\cf0\fs22\par ");
uitext = strcat(uitext, "\trowd\trgaph10\trleft210 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs\clbrdrr\brdrw30\brdrs \cellx2800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx5300 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx7800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx10300 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx12800 ");
uitext = strcat(uitext, "\pard\intbl\b\fs20");
uitext = strcat(uitext, "   Output\cell");
uitext = strcat(uitext, "   Min\cell");
uitext = strcat(uitext, "   Max\cell");
uitext = strcat(uitext, "   Mean\cell");
uitext = strcat(uitext, "   Std. Dev.\cell");
uitext = strcat(uitext, "\row ");

zzmin = min(__aucvenbdcm_fv__);
zzmax = max(__aucvenbdcm_fv__);
zzmean = mean(__aucvenbdcm_fv__);
zzstddev  = std(__aucvenbdcm_fv__);
uitext = strcat(uitext, "\trowd\trgaph10");
uitext = strcat(uitext, "\trleft210\clbrdrr\brdrw30\brdrs \cellx2800");
uitext = strcat(uitext, "\cellx5300");
uitext = strcat(uitext, "\cellx7800");
uitext = strcat(uitext, "\cellx10300");
```

```
uitext = strcat(uitext, "\cellx12800");
uitext = strcat(uitext, "\pard\intbl\b");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "aucvenbdcm");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "  \b0 ");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmin)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmax)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmean)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzstddev)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "\row ");

zzmin = min(__traml_fv__);
zzmax = max(__traml_fv__);
zzmean = mean(__traml_fv__);
zzstddev  = std(__traml_fv__);
uitext = strcat(uitext, "\trowd\trgaph10");
uitext = strcat(uitext, "\trleft210\clbrdrr\brdrw30\brdrs \cellx2800");
uitext = strcat(uitext, "\cellx5300");
uitext = strcat(uitext, "\cellx7800");
uitext = strcat(uitext, "\cellx10300");
uitext = strcat(uitext, "\cellx12800");
uitext = strcat(uitext, "\pard\intbl\b");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "traml");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "  \b0 ");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmin)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmax)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmean)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzstddev)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "\row ");
```

```
uitext = strcat(uitext, "\pard\li270\fs22\par ");
uitext = strcat(uitext, "\par ");
uitext = strcat(uitext, "\f1\fs20\par ");
uitext = strcat(uitext, "} ");
uiset(uiHandle, rtbHandle, "Rtf", uitext);
```

```
% M file automatically generated by acslXtreme on Tuesday, August 11, 2015 at 3:27:33 PM
% Edited by EMK to
% Execute pre-optimization script
use("scaling_shower")

% Monte Carlo Analysis Run
% Uses simulation : BDCM_inh2.dll
disp("------------------------------")

% prepare any variables for which time histories need to be captured
prepare t
prepare cvbdcmppt
prepare calvbdcm1

% create the arrays into which output will be accumulated
__aucvenbdcm_fv__ = [];
__cvbdcmppt_th__ = [];
__traml_fv__ = [];
__calvbdcm1_th__ = [];

% create the arrays into which inputs will be accumulated
__fvl__ = [];
__mmpgl__ = [];

% perform iterations
seedrnd(1234567890, 123456789);
numIts = 10000
colcount = 0;
for iter = [1 : numIts]
        disp(sprintf("MC Iteration #%d of %d", iter, numIts));
        disp("----------------------------");
        % set the inputs
        FVL = 0 + 1 * normrnd(0.0244, 0.0109, 0.0136, 0.0415);
        __fvl__ = [__fvl__ FVL];
        MMPGL = 0 + 1 * lognrnd(3.9684, 0.3893);
        __mmpgl__ = [__mmpgl__ MMPGL];

        % perform the simulation run
        !! start /nc

        % collect the outputs for this iteration
        % histograms: just append the current value to the end of the array
        % time histories: each time history will be a new column in the output array
        % just append the time history to the end of the array
        __aucvenbdcm_fv__ = [__aucvenbdcm_fv__ AUCVENBDCM];
        __cvbdcmppt_th__ = addcolsj(__cvbdcmppt_th__,_cvbdcmppt, @Justification = 'begin');
        __traml_fv__ = [__traml_fv__ TRAML];
        __calvbdcm1_th__ = addcolsj(__calvbdcm1_th__,_calvbdcm1, @Justification = 'begin');
```

```
end

% generate output plots
% one plot for each output

% a good default number of bins for a histogram is the
% square root of the sample size
zznumbins = sqrt(10000);

% generate histogram
zzmin = min(__aucvenbdcm_fv__);
zzmax = max(__aucvenbdcm_fv__);
zzdelta = (zzmax - zzmin) / zznumbins;
zzbins = [zzmin : zzdelta : zzmax];
hist(__aucvenbdcm_fv__, zzbins, 'mc_aucvenbdcm_fv.aps');

% generate time history plot
% by default, plot the average and the +/- 3 sigma curves
zzmean = mean(__cvbdcmppt_th__')';
zzstddev  = std(__cvbdcmppt_th__')';
plot(_t, zzmean, _t, zzmean + 3*zzstddev, _t, zzmean - 3*zzstddev, 'mc_cvbdcmppt_th.aps');

% generate histogram
zzmin = min(__traml_fv__);
zzmax = max(__traml_fv__);
zzdelta = (zzmax - zzmin) / zznumbins;
zzbins = [zzmin : zzdelta : zzmax];
hist(__traml_fv__, zzbins, 'mc_traml_fv.aps');

% generate time history plot
% by default, plot the average and the +/- 3 sigma curves
zzmean = mean(__calvbdcm1_th__')';
zzstddev  = std(__calvbdcm1_th__')';
plot(_t, zzmean, _t, zzmean + 3*zzstddev, _t, zzmean - 3*zzstddev, 'mc_calvbdcm_th.aps');
disp("-------------------------------")

%This code generates tables for default report
set @Preference = NoBackSlashEscapes
uiHandle = uifigure;
rtbHandle = uicontrol(uiHandle, "RichTextBox");
uiset(uiHandle, rtbHandle, "Dock", "Fill");
uiset(uiHandle, rtbHandle, "ReadOnly", 1);
uiset(uiHandle, rtbHandle, "WordWrap", 0);
uiset(uiHandle, rtbHandle, "BackColor", "White");
uitext = "";
uitext = strcat(uitext, "{\rtf1\ansi\ansicpg1252\deff0\deflang1033{\fonttbl{\f0\fswiss\fprq2\fcharset0
Arial;}{\f1\fswiss\fcharset0 Arial;}} ");
uitext = strcat(uitext, "{\colortbl ;\red51\green51\blue153;\red0\green0\blue0;} ");
```

```
uitext = strcat(uitext, "\viewkind4\uc1\pard\li270\cf1\f0\fs28\par ");
uitext = strcat(uitext, "Monte Carlo Analysis Results\par ");
uitext = strcat(uitext, "\cf0\fs22
_____\par ");
uitext = strcat(uitext, "\par ");
uitext = strcat(uitext, "\fs24 Date:\tab\tab\cf1 Tuesday, August 11, 2015 at 3:27:33 PM\tab\cf0\par ");
uitext = strcat(uitext, "Script File:\tab\tab\cf1C:\\BDCM\\bdcm6\\monty1shower.m\par ");
uitext = strcat(uitext, "\cf2 Simulation DLL\cf0 : \tab\cf1 BDCM_inh2.dll\par ");

uitext = strcat(uitext, "\cf2 Num. Iterations\cf0 : \tab\cf1 10000\par ");
uitext = strcat(uitext, "\cf2\par Input Parameter Statistics: \par");
uitext = strcat(uitext, "\cf0\fs22\par ");
uitext = strcat(uitext, "\trowd\trgaph10\trleft210 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs\clbrdrr\brdrw30\brdrs \cellx2800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx5300 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx7800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx10300 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx12800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx15300 ");
uitext = strcat(uitext, "\pard\intbl\b\fs20");
uitext = strcat(uitext, "   Input\cell");
uitext = strcat(uitext, "   Distr.\cell");
uitext = strcat(uitext, "   Min\cell");
uitext = strcat(uitext, "   Max\cell");
uitext = strcat(uitext, "   Mean\cell");
uitext = strcat(uitext, "   Std. Dev.\cell");
uitext = strcat(uitext, "\row ");

zzmin = min(__fvl__);
zzmax = max(__fvl__);
zzmean = mean(__fvl__);
zzstddev  = std(__fvl__);
uitext = strcat(uitext, "\trowd\trgaph10");
uitext = strcat(uitext, "\trleft210\clbrdrr\brdrw30\brdrs \cellx2800");
uitext = strcat(uitext, "\cellx5300");
uitext = strcat(uitext, "\cellx7800");
uitext = strcat(uitext, "\cellx10300");
uitext = strcat(uitext, "\cellx12800");
uitext = strcat(uitext, "\cellx15300");
uitext = strcat(uitext, "\pard\intbl\b");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "fvl");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "  \b0 ");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "Normal");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
```

```
uitext = strcat(uitext, txt2str(sprintf("%e", zzmin)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmax)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmean)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzstddev)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "\row ");

zzmin = min(__mmpgl__);
zzmax = max(__mmpgl__);
zzmean = mean(__mmpgl__);
zzstddev  = std(__mmpgl__);
uitext = strcat(uitext, "\trowd\trgaph10");
uitext = strcat(uitext, "\trleft210\clbrdrr\brdrw30\brdrs \cellx2800");
uitext = strcat(uitext, "\cellx5300");
uitext = strcat(uitext, "\cellx7800");
uitext = strcat(uitext, "\cellx10300");
uitext = strcat(uitext, "\cellx12800");
uitext = strcat(uitext, "\cellx15300");
uitext = strcat(uitext, "\pard\intbl\b");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "mmpgl");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "  \b0 ");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "LogNormal");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmin)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmax)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmean)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzstddev)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "\row ");
uitext = strcat(uitext, "\pard\li270\fs22\par ");
uitext = strcat(uitext, "\cf2\fs24\par Final Value Ouput Statistics: \par");
uitext = strcat(uitext, "\cf0\fs22\par ");
```

```
uitext = strcat(uitext, "\trowd\trgaph10\trleft210 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs\clbrdrr\brdrw30\brdrs \cellx2800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx5300 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx7800 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx10300 ");
uitext = strcat(uitext, "\clbrdrb\brdrw30\brdrs \cellx12800 ");
uitext = strcat(uitext, "\pard\intbl\b\fs20");
uitext = strcat(uitext, "   Output\cell");
uitext = strcat(uitext, "   Min\cell");
uitext = strcat(uitext, "   Max\cell");
uitext = strcat(uitext, "   Mean\cell");
uitext = strcat(uitext, "   Std. Dev.\cell");
uitext = strcat(uitext, "\row ");

zzmin = min(__aucvenbdcm_fv__);
zzmax = max(__aucvenbdcm_fv__);
zzmean = mean(__aucvenbdcm_fv__);
zzstddev  = std(__aucvenbdcm_fv__);
uitext = strcat(uitext, "\trowd\trgaph10");
uitext = strcat(uitext, "\trleft210\clbrdrr\brdrw30\brdrs \cellx2800");
uitext = strcat(uitext, "\cellx5300");
uitext = strcat(uitext, "\cellx7800");
uitext = strcat(uitext, "\cellx10300");
uitext = strcat(uitext, "\cellx12800");
uitext = strcat(uitext, "\pard\intbl\b");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "aucvenbdcm");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "  \b0 ");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmin)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmax)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmean)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzstddev)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "\row ");

zzmin = min(__traml_fv__);
zzmax = max(__traml_fv__);
zzmean = mean(__traml_fv__);
zzstddev  = std(__traml_fv__);
uitext = strcat(uitext, "\trowd\trgaph10");
```

```
uitext = strcat(uitext, "\trleft210\clbrdrr\brdrw30\brdrs \cellx2800");
uitext = strcat(uitext, "\cellx5300");
uitext = strcat(uitext, "\cellx7800");
uitext = strcat(uitext, "\cellx10300");
uitext = strcat(uitext, "\cellx12800");
uitext = strcat(uitext, "\pard\intbl\b");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, "traml");
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "  \b0 ");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmin)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmax)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzmean)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "   ");
uitext = strcat(uitext, txt2str(sprintf("%e", zzstddev)));
uitext = strcat(uitext, "\cell");
uitext = strcat(uitext, "\row ");
uitext = strcat(uitext, "\pard\li270\fs22\par ");
uitext = strcat(uitext, "\par ");
uitext = strcat(uitext, "\f1\fs20\par ");
uitext = strcat(uitext, "} ");
uiset(uiHandle, rtbHandle, "Rtf", uitext);
```