MACCS2 Consequence Code Set
Version Control Matrix
DRAFT

Version control numbers have been assigned to MACCS2, WinMACCS, SECPOP, and MELMACCS throughout their development. The numeric code structure identifies that a change has been implemented since the previous number. The numeric structure is similar to that implemented by the MELCOR code, which had historically used an alpha-numeric description but has migrated over the years to a numeric structure. Table 1 through Table 4 show the version, release, applications, and version description of the MACCS2, WinMACCS, SECPOP, and MELMACCS codes, respectively. Bolded versions listed in the 'Version' column of Table 1 through Table 4 are those MACCS2, WinMACCS, SECPOP, and MELMACCS version released beyond alpha testing of the respective codes.

Table 1:   MACCS2 Version Development

Version	Released	Application Use	Version Description
MACCS2 v3.7.0.2			As of January 18, 2013, testing is not complete. Bug #1050: MACCS2 does not prevent a user from running the code when using different speed multipliers per grid with IPLUME equal to 1 or 2, which includes rotation. Bug #1057: In the calculation of CHRONC Health Effects (Type 1 results) for the case of IPLUME =2 or IPLUME=3 and using SUMPOP with threshold, the code is implementing a test whether the individual grid value for the population weighted fraction equals 0. Bug #1058: In the case of SUMPOP with Threshold the value calculated for the survivor's population was incorrect. Bug #1059: For the Population Movement (Type E) calculations, the overall population weighted fraction is not being calculated in the SUMPOP case. Enhancement #1019: People option – store actual cohort populations and use in individual cohort calculations in the same way the SUMPOP option does.
MACCS2 v3.7.0.1			Tested November 2012. Bug #1046: Problems with the Population movement result type: a. Values per cohort or not being reported correctly in the binary file. b. Code is using an unneeded test for IPLUME==1 in the subroutine that calculates travel time. c. NUMVAL is not set correctly. NUMVAL should always equal 1, code currently sets NUMVAL to be NUMCOR when IPLUME = 1 or 2, but does not implement the code for rotation that is needed if NUMVAL = NUMCOR. Bug #1047: Problem with keyhole model when Constant weather is used.
MACCS2 v3.7.0.0	December 2012 (Public)	Spent Fuel Pool Scoping Study	Tested November 2012. Modified version ID as per release protocol. Protocol is to update the minor or major release number when a new version is sent to the NRC. Rename version 2.5.0.14 to be 3.7.0.0 to now be consistent with WinMACCS version numbering.
MACCS2 v2.5.0.14			Tested November 2012. Bug #1036: Three cases are seen that are different between v2.5.0.9 and v2.5.0.13.
MACCS2 v2.5.0.13			Tested November 2012. Bug #1029: Population Dose results are too large when running SUMPOP with Threshold when IPLUME = 1. Bug #1030: Need to remove the test of whether a grid element has a population of zero when calculating the Population Dose. Bug #1031: In the case of SUMPOP, the Average individual Risk values calculated for the Overall results will display 0.0 even if the individual cohort values are nonzero when the grid ring values requested have a zero population. Bug #1032: Modify the Population weighted fraction calculation for Peak Dose (type A) results when using SUMPOP with threshold. Bug #1033: SUMPOP Threshold Health Effect LNT and Adjusted Population doses are not calculated correctly when IPLUME=1.

Version	Released	Application Use	Version Description
MACCS2 v2.5.0.12			Tested September 2012. Bug #1009: Units conversion from Bq to Ci is not calculated correctly. MACCS is giving the wrong value for Ci. Bug #1010: Problem with the output from the Population Movement Result Type E being printed to the Binary file.
MACCS2 v2.5.0.11			Tested September 2012. Enhancement: Display alternate units (Ci, rem, mi, mi**2, and km**2) in the binary output file. Enhancement: Implement the Keyhole evacuation model.
MACCS2 v2.5.0.10			Tested July 2012. Bug #986: The SUMPOP option with the Threshold model is reporting values for Health Effects that appear to be incorrect.
MACCS2 v2.5.0.9		SOARCA Peach Bottom Uncertainty Analysis NRC BWR Filtered Containment Venting	Tested May 2012. Bug #963: Unexpected error message appears concerning type 10 output. Bug #966: Change wording of error message when the sigma y lookup table has been exceeded. Bug #967: Improve original bug fix to Bug #942.
MACCS2 v2.5.0.8			Intermediate version. Bug #942: Unable to get report in Square miles. Bug #946: New economics file produced in MACCS2 2.5.0.7 when running old MACCS2 economic model.
MACCS2 v2.5.0.7			Tested May 2012. Bug #885: Plume Meander Model shown in Regulatory Guide 1.145 was originally implemented incorrectly. Bug #910: Preprocessor REAcct output file name not being read completely.
MACCS2 v2.5.0.6			Tested May 2012. Bug #747: Error in type C and type D output. Bug #783: DCF path too long to process error message from MACCS2. Bug #802: Discrepant result in constant weather problem with new Intel compiler. Bug #921: The lower limit of the input variable PLMDEN needed to be lowered. Enhancement: Display alternate units (Ci,rem,mi,mi^2,ki^2) in the output depending on the user's choice. Bug #972: Sigma Y is not changing when sigma Z exceeds the table values.
MACCS2 v2.5.0.5			Intermediate version. Created in January 2012 and replaced by MACCS2 v2.5.0.6 in February 2012.
MACCS2 v2.5.0.4			Tested October 2010. Bug #769: Three regression problems that involve the KI model showed a significant number of differences between version 2.04.00.06 and 2.05.00.00. There was no change in the code for the KI model to account for this difference. Bug #789: Warning messages of the type shown below were being printed to the MACCS2 status file.

Version	Released	Application Use	Version Description
MACCS2 v2.5.0.3		Risk Informed Emergency Planning	Tested February through June 2010. Bug #539: Four tests were implemented into the regression testing for the addition of evacuation cohorts and incorporation of SUMPOP into the MACCS2 analysis.
MACCS2 v2.5.0.2			Tested in February 2010. Enhancement: Now using Intel Fortran compiler to create the MACCS2 executable.
MACCS2 v2.5.0.1			Tested in December 2010. Code was added to test for case where the sigma y table values are exceeded. Code added to FSGYIN() function in file ATMOS.FOR
MACCS2 v2.5.0.0	May 2010 (Public)	SOARCA	Tested May 2010. Modified version ID as per release protocol. Identical to 2.4.0.6 except version and date except for the following bug. Bug #521: Changed error message when dispersion table for sigma-z is exceeded.
MACCS2 v2.4.0.6			Tested March 2010. Bug #509: MACCS2 can use a weather file based on a lower NUMCOR value than what NUMCOR is set to in WinMACCS and not give a warning to the user. Bug #511: If a period of weather data is labeled incorrectly or if data are not in the correct range of values, MACCS2 does not give the correct error message. Bug #514: The message "Deaths greater than Population!!!!!" is being printed to the output when it should not be. Bug #515: Problem with the Plume Meander Model US NRC Regulatory Guide 1.145 (MNDMOD=NEW). Enhancement #513: Convert MACCS2 Compaq compiler project to use the new Intel FORTRAN Compiler.
MACCS2 v2.4.0.5			Tested November 2009. Bug #505: Write the correct number of trials to the binary file created for Enhancement #503. Bug #510: Fix the problem of the Dispersion SIGMA Lookup table being exceeded.
MACCS2 v2.4.0.4			Tested November 2009. Bug #502: ACU_DOSE is read in from the COMIDA2 file without taking into account whether all organs are being used in the model (not all organs set to TRUE). Now re-setting ACU_DOSE array values according to which organs are being used. Enhancement #503: Using the 'maccs2.ini' file give the user the option to print all dose values for all grid elements per cohort per weather trial per source term.
MACCS2 v2.4.0.3			Tested September 2009. Bug #485: Removed the test that was added in version 2.4.0.2 using RISFAT to determine it the plume affects the fine grid element.
MACCS2 v2.4.0.2			Tested June 2009. Bug #485: Effects of fine grid not being taken into account when the latent cancers are being calculated. Bug #486: Doses calculated in early and then passed on to CHRONC in the Emergency Phase Dose array, when running the Threshold model, are not taking into account the effects of the fine grid.

Version	Released	Application Use	Version Description
MACCS2 v2.4.0.1			Tested September 2008. Bug #416: Type 10, 11 and 12 output results should be valid when the 'No Food' model is set to On. MACCS2 doesn't allow this at all (Also type 9). Bug #452: The wrong dose was being printed for the Effective (EDEWBODY or ICRP60ED) organ LNT dose and USED dose. Bug #464: User guide says you can have a maximum of 20 type 8 results calculated, but the code only allows 10. Bug #466: KI model is not being correctly implemented when the Threshold Model is used. Bug #467: Certain range values for type 8 results are causing all results in output file to be corrupted. Enhancement #427: Remove cumbersome way weather file data is read as a block of numbers instead of individual columns.
MACCS2 v2.4.0.0	March 2008 (Public)		Tested March 2008. Modified version ID as per release protocol. Identical to 2.3.0.1 except version and date.
MACCS2 v2.3.0.1			Tested 2008. Bug #450: Add and Test header of the DCF file to see if CHRONC CHRNDF megafile is current.
MACCS2 v2.3.0.0	January 2008 (NRC Internal)		Tested January 2008. Modified version ID as per release protocol. Identical to 2.2.0.5 except version and date.
MACCS2 v2.2.0.5			Tested January 2008. Bug #434: Print all messages about whether the CHRONC CHRND File is compatible. Enhancement #433: Print Effective organ LNT and USED doses when Total Cancer Type 1 results are requested.
MACCS2 v2.2.0.4			Tested December 2007. Bug #429: Add and test more dependent variables for the CHRNDF megafile used in the threshold model calculations. Enhancement #430: Reduce the number of times the string "WARNING!!" is used in a warning message to just once.
MACCS2 v2.2.0.3			Tested December 2007. Bug # 388: Support printing of output tables for all possible values of NUMCOR. Bug #389: The RESCON and RESHAF variables should not be allowed to be change cards. Bug #406: Printing more informative message if CHRONC factor file for the Threshold model is not compatible with current problem. Bug # 413: Improve error message if the value of an hour (period) read from the met file is not in the correct range. Currently, just causes a segmentation fault, array out of bounds error. Bug # 417: MACCS2 needs to verify/test values of wind direction in a given weather file to ensure that it is correct for the give value of NUMCOR. Bug #420: Life time history Dose is not recorded correctly. Bug #422: The output is incorrect for the Release Inventory Data. Bug #425: Threshold model: Stop printing the "ORGAN TOTAL" results for the LNT and Used Dose for type 1 results.

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MACCS2 v2.2.0.3 (continued)			Bug #426: Current Total plume release duration warning is not correct for all meander models. Comment #252: Why is the "NOT_FOUND" string printed for percentile values?
MACCS2 v2.2.0.2			Tested September 2007. Bug #414: Stack memory error.
MACCS2 v2.2.0.1			Tested July 2007. Removed 'open' statement line that created an empty file named Metsur12030.inp.
MACCS2 v2.2.0.0	July 2007 (Beta Test)		Tested July 2007. Modified version ID as per release protocol. Identical to v2.1.0.27 except version and date.
MACCS2 v2.1.0.27			Tested July 2007. Bug: Corrected error where weather trial headings were being printed when IDEBUG = -1. Bug #403: Fix values in binary Mega file used to speed up Threshold calculations. Bug #405: Removed call to PRINT_JF_TABLE.
MACCS2 v2.1.0.26			Tested July 2007. Bug: Always recreate ChrndfFile. Bug #396: Change the sentence, "AREA THAT EXCEEDS THRESHOLD (Hectares)" to "AREA (Hectares) THAT EXCEEDS THRESHOLD" for Type C and D area exceeds results in the output file.
MACCS2 v2.1.0.25			Tested June 2007. Bug #394: Population per grid values when calculating results for type 10, 11, 12, and CHRONC results. Bug #395: Unclear what units are used for Type C and D "area that exceeds threshold value" results.
MACCS2 v2.1.0.24			Tested June 2007. Bug #383: Plume release order problem. Bug #387: KI model is not working for FGR-11, -12 DCF file case.
MACCS2 v2.1.0.23			Tested May 2007. Bug #380: Revisited Bug 367. Survivors are not being calculated correctly. Bug #381: Summary results and CHRONC results are not being calculated correctly with multiple cohorts using the Threshold model.
MACCS2 v2.1.0.22			Tested May 2007. Bug #378: Fix problems with new plume meander model show in Regulatory Guide 1.145. Bug #379: Fix bug with memory allocation error for KI model. Enhancement #375: Enabled MACCS2 to use different meteorological time resolutions (15, 30 minutes).
MACCS2 v2.1.0.21			Tested April 2007. Bug #372: Memory error. Bug #376: An error was found in the operation of the plume dispersion model when set to use the distance model. Enhancement #373: Merged memory management modifications done by Jamie Cash to increase the speed of the Threshold model. Enhancement #374: Implement new plume meander model shown in Regulatory Guide 1.145 and an 'OFF' option where the original model from MACCS2 v1.12 is used with expansion factor (EXPFAC) set to 1.0.

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MACCS2 v2.1.0.20			Tested April 2007. Bug #367: Fix problems with Early Survivors array. Bug #368: Memory out of bounds errors occurs when maximum hard coded number of input cards allowed by MACCS2 is exceeded. Bug #369: Travel time for the network evacuation is not calculated correctly. Bug #370: Increase DIMMAX from 30 to be NUMCOR/4*NUMFIN+2 in calculation for the fine grid. Bug #371: Program complains about missing 16th organ when using FGR13DCF DCF file. FGR13DCF DCF file model only uses 15 organs. Enhancement #342: Added the ability for the threshold model to have more than one evacuation scenario.
MACCS2 v2.1.0.19			Tested March 2007. Enhancement #353: Increase angular resolution from 16 to 72. Enhancement #363: Implement support for a new DCF file format called FGR13DCF.
MACCS2 v2.1.0.18			Tested February 2007. Enhancement: Change range of values allowed for ESPGRD from (0.0 to 1,000,000.0) to be (0.01 to 10.0). Enhancement: Fix problem of multiple source terms failing. Enhancement: Save intermediate version for increasing angular resolution.
MACCS2 v2.1.0.17			Tested February 2007. Bug #358: Fix problem with calculation of sigma-z.
MACCS2 v2.1.0.16			Tested February 2007. Bug #356: MACCS2 crashes if CHRONC is not being run but EARLY is. Bug #357: MACCS2 crashes when running with more than one source term.
MACCS2 v2.1.0.15			Tested February 2007. Bug #354: MACCS2 crashes when only ATMOS is turned on or when running the Threshold model. Bug #355: Reset the peak time of day when the maximum mixing height stops increasing. Enhancement #341: Implement a new flag value to turn off the Food and Water dose calculations.
MACCS2 v2.1.0.14			Tested December 2006. Bug #344: Use correct population count for all CHRONC calculations. Bug #345: MACCS2 crashes when more than one source term is defined in ATMOS. Bug #348: Fix calculations of SIGMZ in the ATMOS_NOFIRE subroutine. Bug #349: Fix calculation of maximum mixing heights when MAXHGT flag is set to DAY_AND_NIGHT. Bug #350: Implement the use of the 120 user defined values for the maximum mixing height.
MACCS2 v2.1.0.13			Tested December 2006. Enhancement #317: Implement evacuation speed multiplier per grid. Enhancement #335 & 338: Modify and add variables in MACCS2 (DOSNRM, DOSHOT, ENDEMP, TIMHOT, TIMNRM, LPROTIN, LBRRATE, LGSHFRAC). Enhancement #339: Increase number of allowed evacuation cohorts.
Version	Released	Application Use	Version Description
MACCS2 v2.1.0.13			Bug #343: Save TRAVELPOINT value per evacuation scenario.

Version	Released	Application Use	Version Description
(continued)			
MACCS2 v2.1.0.12			Tested September 2006. Bug #334: Print Type C and Type D land area values that exceed a threshold to the binary file.
MACCS2 v2.1.0.11			Tested September 2006. Bug #322: Incorrect record number is stated when a record is replaced in the input of MACCS2. Bug #331: The calculations for the 10th quantiles are incorrect. Bug #332: Change units for 'area exceeds threshold' values in text output file. Bug #333: Remove from binary file the Type C and Type D land area values that exceed a threshold.
MACCS2 v2.1.0.10			Tested August 2006. Bug #329: Incorrect output names, units, strings, and values to binary and text output files.
MACCS2 v2.1.0.9			Tested August 2006. Bug #327: Add a new qualifier type to the MACCS2 variables printed in the binary file.
MACCS2 v2.1.0.8		Third Security Study for Indian Point and Limerick	Tested August 2006. Bug #326: MACCS2 crashes when using dynamic memory instead of temporary files.
MACCS2 v2.1.0.7			Tested July 2006. Bug #320: Add 'Sv' to Type B results. Bug #321: Unexpected characters in the text output file. Enhancement #280: Switch code from using temporary files to using dynamic memory for possible speed up of run time. Enhancement #309: Output value of MAXHGT flag to output file. Enhancement #315: Calculate and include the 5th and 10th percentile numbers in the binary output file. Enhancement #325: Edit variable label strings printed in the binary file.
MACCS2 v2.1.0.6			Tested June 2006. Bug #308: CHECK_SIGMA_Y test too restrictive.
MACCS2 v2.1.0.5			Tested June 2006. Bug #268: Questioning whether Bug #200 marked as fixed is really fixed. Bug #304: File name problems when periods are used in director names or non-standard file names. Bug #305: Land area ground concentrations for Type D results are incorrect for IPLUME=1. Bug #306: CHECK_SIGMA_Y test problem. Bug #307: Incorrect plume release reported as failing CHECK_SIGMA_Y test, and virtual radius used in the CHECK_SIGMA_Y test is incorrect.
MACCS2 v2.1.0.4			Tested April 2006. Bug #16: Print more informative error message when a dose conversion factor file is encountered with the wrong format. Bug #251: Need better handling of optional variables that fail validation tests in MACCS2. Enhancement #281: Shift code from using static memory to using dynamic memory. Bug #286: CHECK_SIGMA_Y test is returning an incorrect error message.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
MACCS2 v2.1.0.4 (continued)			Bug #285: Discrepancy in the output file of the values found in the METEOROLOGICAL BIN SUMMARY table and the BIN WINDROSE SUMMARY table.
MACCS2 v2.1.0.3			Tested January 2006. Enhancement #275: Change flag names and input units for Maximum Mixing Layer Height model. Enhancement #276: Remove hard coded latitude and longitude from Zee function.
MACCS2 v2.1.0.2			Tested January 2006. Enhancement #273: Task 11.2 – Nighttime mixing height.
MACCS2 v2.1.0.1			Tested October 2005. Bug #265: Code error in SpeedMult function.
MACCS2 v2.1.0.0	October 2005 (NRC Internal)	Second Security Study for Grand Gulf and Sequoyah	Tested October 2005. Modified version ID as per release protocol. Identical to v2.0.0.12 except version and date.
MACCS2 v2.0.0.12			Tested October 2005. Bug #263: Error code in SpeedMult function.
MACCS2 v2.0.0.11			Tested October 2005. Bug #262: Error in evacuation speed multiplier.
MACCS2 v2.0.0.10			Tested October 2005. Bug #255: Change release units. Bug #256: FortErr.log file name not receiving prefix when '-p' parameter used.
MACCS2 v2.0.0.9			Tested October 2005. Bug #261: Incorrect behavior when using evacuation speed multiplier.
MACCS2 v2.0.0.8			Tested October 2005. Bug #260: FORTRAN error – Program Exception array bounds exceeded.
MACCS2 v2.0.0.7			Tested October 2005. Bug #259: MACCS2 enters an infinite loop when running example project.
MACCS2 v2.0.0.6			Tested October 2005. Bug #258: FORTRAN error – Program Exception array bounds exceeded.
MACCS2 v2.0.0.5			Tested October 2005. Bug: FORTRAN error – Program Exception array bounds exceeded.
MACCS2 v2.0.0.4			Tested September 2005. Bug #253: Over counting of latent cancer deaths in EARLY.
MACCS2 v2.0.0.3			Tested September 2005. Bug #249: Middle phase and late phase speed multipliers are not used.
MACCS2 v2.0.0.2			Tested July 2005. Bug #25 & 18: Examine effects of KI model on health effects. But #201: Support the KI model if an FGRDCF dose conversion file is used. Bug #238: FORTRAN error occurs when running a project with the IDEBUG set to 8. Bug #245: Double counting of population with EARLY and CHRONC.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
MACCS2 v2.0.0.2 (continued)			Enhancement #203: TOTAL used as keyword in MACCS2. Enhancement #232: Modify data limits for METCOD. Enhancement #240: Change the valid values for INWGHT to be 0 to 8760. Enhancement #246: Add prefix to MACCS2 status file and FORTRAN error file. Enhancement #247: Task 11.1 – Evacuation speed multiplier. Comment #248: Evaluate changes 'j' and 'l' from Enhancement #60. Documentation Question #59: Verify SECPOP comment in Section A.3.7 of Appendix A of the MACCS2 User Guide is consistent, and verifies the watershed injection factor for up to 4 is supported.
MACCS2 v2.0.1.1			Tested June 2005. Enhancement #240: Change rand of valid values for INWGHT to be 0 to 8,760.
MACCS2 v2.0.0.1			Tested May 2005. Bug #60 & #196: Review improvements of MACCS2 made by Arne Olson. Bug #200: Remove the suffix '.inp' restriction from DCF and COMIDA2 files. Enhancement #45: Incorporate a time stamp for the text output file and the binary output file. Enhancement #236: Remove warning messages for when plumes overlap. Enhancement #237: Increase maximum number of particle size deposition groups that can be defined in MACCS2 from 10 to 20.
MACCS2 v2.0.0.0	April 2005 (NRC Internal)	Protective Action Recommendation Study	Tested April 2005. Modified version ID as per release protocol. Identical to v1.16.0.19 except version and date and the following bug and discrepancies. Bug: Unable to use DOSDAT.INP as a dose conversion file. Discrepancy #1 with Enhancement #17: LNT doses are not matching the Type 5 population dose results for all test cases. Discrepancy #2 with Enhancement #17: For cases when only one plume is defined, the LNT and USED doses reported using IPLUME=3 are equal to the corresponding LNT and USED doses when IPLUME=3. Discrepancy #3 with Enhancement #17: Health effect 'TOTAL' can be defined as a latent cancer parameter in the WinMACCS interface.
MACCS2 v1.16.0.19			Tested March 2005. Bug: MACCS2 fails when using sample project with KI model on. Bug: Land area that exceeds a specified threshold for the Type D results is reported incorrectly. Bug: MACCS2 cannot read a filename of 500 characters. Bug #214: MACCS2 fails for a given COMIDA2 file. Bug #215: MACCS2 fails if differential DCF files or COMIDA2 files are missing. Bug #216: MACCS2 subroutine 'ABORT' does not write to the WinMACCS/MACCS2 interface file, maxstat.log. Bug #217: Insufficient information in the maxstat.log for error messages. Bug #219: MACCS2 fails when using KI model with FGRDCF files.
Version	**Released**	**Application Use**	**Version Description**
MACCS2 v1.16.0.18			Tested March 2005.

Version	Released	Application Use	Version Description
			Bug: Fixed error in crosswind dispersion model. Bug: Fixed error in 'Improved Briggs' plume rise model. Bug #218: EARLY health effects are reported incorrectly.
MACCS2 v1.16.0.17			Tested February 2005. Bug #1: Corrected output line feed correction. Bug #14: Increased maximum CORINV from 1E+20 to 1E+25. Bug #178: Implement TMPACT. Bug #192: Corrected error in 'Maximum Long-Term Action Distance' output for IPLUME=3. Bug #207: Corrected a WinMACCS/MACCS2 'change' card. Bug #212: Increased all file name or file path name character strings to have a length of 500. Enhancement #17: Print LNT POP DOSES and USED POP DOSES for the corresponding HEALTH EFFECT organs when using the Threshold or Piecewise model.
MACCS2 v1.16.0.16			Tested February 2005. Bug: Correct Type D result print flag which cause MACCS2 to fail. Enhancement: Added new dispersion model, Improved Briggs model. Bug #209: Corrected output binary file.
MACCS2 v1.16.0.15			Tested November 2004. Bug: Removed error message when optional EARLY card variable LCDTHLIF is not present. Bug #161: Periods can now appear in the path names for the DCF and COMIDA2 files.
MACCS2 v1.16.0.14		Initial Security Study for Surry and Peach Bottom	Tested October 2004. Enhancement: Added new input cards for Threshold and Piecewise models.
MACCS2 v1.16.0.13			Tested September 2004. Enhancement: Updates to the Threshold and Piecewise models.
MACCS2 v1.16.0.12			Tested August 2004. Bug: Added a test for failure if number of Type D results exceeds a maximum number. Bug: Added the correct calculation of the total number of Type C and Type D results. Bug: Corrected error in subroutine OUTPTD. Bug: Commented out line that created the debug scratch file 'fort.789' when Type C variables are requested. Enhancement: Added EARLY Type C and Type D results to the binary output file. Enhancement: Added CHRONC results to the binary output file. Enhancement: Increased the size of the file path names to 250 characters. Enhancement: Created a threshold value for the Type C and Type D output request cards required. Enhancement: Added a new flag for the Type C and Type D output request cards. Enhancement: Added the organ name of or the nuclide name to the output of the Type C or Type D threshold value results. Enhancement: Changed the output text file format.
Version	**Released**	**Application Use**	**Version Description**
MACCS2 v1.16.0.11			Tested May 2004.

Version	Released	Application Use	Version Description
			Enhancement: Added EARLY results types 1 through B to the binary file output.
			Enhancement: Combined changes from program branch by S. Shannon outside of Source Safe, with the main branch of development in Source Safe.
MACCS2 v1.16.0.10			Tested May 2004.
			Enhancement: Modified format of binary file to support CHRONC output.
			Enhancement: Update FORTRAN binary files.
			Enhancement: Created a new project in Visual Source Safe for source code tracking.
MACCS2 v1.16.0.9			Tested February 2004.
			Bug: The Type D output for both ground concentrations and ground-level airborne concentrations were found to be incorrect.
MACCS2 v1.16.0.8			Created December 2003.
			Enhancement: Add Type D output.
			Enhancement: Removed all v1.16.0.7 changes.
MACCS2 v1.16.0.7			Created November 2003.
			Enhancement: Added 'special' Type C output. This is temporary and will be removed in next version.
MACCS2 v1.16.0.6	NRC (Internal)		Created September 2003.
			Bug: Update the KI model to run with all emergency scenarios.
MACCS2 v1.16.0.5			Created August 2003.
			Enhancement: Change area affected, land use from using IROT to INDPOP for all area equations.
MACCS2 v1.16.0.4			Created August 2003.
			Enhancement: Changed Type 12 output for area affected, land use from using IROT to INDPOP.
MACCS2 v1.16.0.3			Created August 2003.
			Enhancement: Changed Type 12 output for area affected, land use from using IANG to IRAD.
MACCS2 v1.16.0.2			Created July 2003.
			Enhancement: Add Type C output – Direct exposure dose to all spatial elements.
MACCS2 v1.16.0.1			Created July 2003.
			Bug: Correct problem with affected area output.
MACCS2 v1.16.0.0			Created May 2003.
			Modified version ID as per release protocol. Identical to v1.15.1.1 except version and date.
MACCS2 v1.15.1.1			Created May 2003.
			Enhancement: Divide the source files into categorized source files.
			Enhancement: Convert the common blocks into modules or include files.
MACCS2 v1.15.1.0			Created April 2003.
			Enhancement: Extend file names.
			Enhancement: Add KI model.
			Enhancement: Add plume buoyancy model.
			Enhancement: Add land editing information.
Version	**Released**	**Application Use**	**Version Description**
MACCS2 v1.15.0			Created February 2003.

			Enhancement: Add population areas calculations and output. Enhancement: Add threshold model
MACCS2 v1.14.0			Created September 2002. Enhancement: Add fire pool model
MACCS2 v1.13.1	January 2004 (Public)		Tested January 2004. Modified a default file name containing a list of file references in MACCS2. The FORTRAN complier was changed to COMPAQ Visual FORTRAN Professional 6.6B. Same as v1.13.
MACCS2 QA Plan	Version 1.0		Implemented June 2003.
MACCS2 v1.13	September 2001 (NRC Internal)		Created September 2001. Corrected deficiencies found in MACCS2 v1.12 and introduced a GUI interface, WinMACCS, for WINDOWS to support MACCS2 uncertainty analysis. The FORTRAN complier was changed from LAHEY to DIGITIAL Visual FORTRAN Professional 6.6A.
MACCS2 v1.12	April 1997 (Public)		Created April 1997. No information available for this or previous MACCS2 versions.
MACCS2			Beta tested in April 1993.
MACCS1.5			Released in 1990.
MACCS			Released in 1987. Written in FORTRAN 77.
CRAC2			Released in 1982. Used for weather sequence sampling and emergency-response modeling. Written in FORTRAN 66.

Table 2:	WinMACCS Version Development

Version	Released	Application Use	Version Description
WinMACCS v3.7.2			Created November 2012. Enhancement: The Access database, Initialize2000.mdb, was modified as follows: Upper bound of the KEYFORCST parameter changed from 201 hours to 120 hours, variable description fields were modified to be consistent with requirements stated in document Requirements 3.7.2., the value zero is not allowed for the parameter NSECTR, and the WinMACCS source code file main.bas was updated to reflect the new version number.
WinMACCS v3.7.1		Spent Fuel Pool Study	Created September 2012. Though original starting point was 3.6.2, changes made to WinMACCS 3.6.3, 3.6.4 and 3.6.5 were incorporated into 3.7.1. A detailed description of the changes related to the supported category of "EP Improvements" is in the document archived in SVN. Bug #784: If the 'Dose' tab was incomplete on the 'Properties' form as it was in the example problem file (e.g., there was no selected dose model), when the user clicked on Run the incomplete state was detected even if EARLY wasn't being used and MACCS2 was not initiated. Bug #813: Add a new menu item Edit/Auto Propagate Cohort Values on the main menu. Bug #814: Allowing changing the unit of measurement for WinMACCS parameters. Bug #821: Expanded copy/paste functionality in parameter modification forms. Bug #823: Improved usability of map forms for inputting speed, evacuation direction, population values per grid element. Bug #825: Add resizing capabilities to forms displaying the evacuation maps. Bug #852: Combine forms "Phase Durations", and "Evacuee Travel Speeds" into one form, Phase Durations and Speeds. Enhancement: New REAcct economic model. WinMACCS will run the REAcct model, and the results will be integrated into the WinMACCS/MACCS2 interface, allowing MACCS2 to us the results of REAcct in its calculations. Bug #853: Provide custom output reports based on reporting all values for user selected variables over all LHS realizations. Bug #911: WinMACCS would not start on one of the users computers. Bug #928: On the forms Radial Evacuation Speed, Network Evacuation Direction and Network Evacuation Speed, the button to clear the form (shown with an eraser icon) that is usually found to the right of the comment text box is missing. Bug #931: Form "Population by Cohort/Distributions Assigned", has a check box labeled "Hide Map". If "Hide Map" is checked and the "Outer Ring Shown" or "Inner Ring Shown" is changed the map does not remain hidden. Bug #933: Add resizing capabilities to the generic parameter modification form. Enhancement: Change wording on Population Distribution forms from "Distributions", "Distribution Labels", and "Distributions Assigned" to "Populations", "Population Labels" and "Populations Assigned."
Version	Released	Application Use	Version Description

Version	Released	Application Use	Version Description
WinMACCS v3.7.1 (continued)			Bug #943: When upgrading a sample project, the following error was reported: *Subscript out of Range* *Unknown problem* *Unable to complete shape and validation stage* This was triggered when a project had more than 32768 variables defined. Bug #990: If rank orders are defined (Edit/Correlate Uncertain Variables/Enforce Rank Order) for variables in models not used (example: run ATMOS only, but there are some Rank orders defined for EARLY variables) there is a warning message generated for each of these entries. Bug #993: The KI Model value for population when AT or PL is on is either 1 or 0; the KI Model value for the LNT model is in the range [0,1]. Enhancement: Add support for the Population Movement Calculation. Enhancement: Add the new Keyhole evacuation model.
WinMACCS v3.7.0	December 2012 (Public)		Created November 2012. Modified version ID as per release protocol. Protocol is to update the minor or major release number when a new version is sent to the NRC. Identical to v3.6.5 except version number and date. Updated version number variable in file main.bas and in database Initialize2000.mdb.
WinMACCS v3.6.5			Created November 2012. Bug #1016: WinMACCS was made to be compatible with MACCS2 2.5.0.12. Database template file Initialize2000.mdb was modified to support writing the following input card to the MACCS2 early input file – TYPEENUMBER 0. Bug #1018: ChrndfFactors.bin, created for each simulation by MACCS2 when running the threshold dose model, over the network using Sandia's Distributed Execution Framework (DEF). This created a problem when transferring these files over the network due to the size of the files and the network reliability. Enhancement: New help file links added to WinMACCS to support help on forms "Reveal Nuclides" and "Population by Cohort/Distributions Assigned."
WinMACCS v3.6.4		SOARCA Peach Bottom Uncertainty Analysis NRC BWR Filtered Containment Venting	Created July 2012. Bug #982: Running the Threshold model with uncertain DCF factors, the algorithm to name the DCF files contained a bug which overwrote files if more than 100 MACCS2 analyses were created. Bug #983: WinMACCS does not correctly create the DCF threshold files when there is a period in the project path name.
WinMACCS v3.6.3			Created April 2012. Bug #693: When WinMACCS attempts to run DEF, a program 'DefCLaunch' is called. If DefCLaunch is not found, the generated error message is not helpful to the user. Bug #822: The multi-select function is not working. Bug #824: Modified template database Initialize2000.mdb to reflect new limits for the speed multiplier for all cohorts.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.6.3 (continued)			Bug #839: When running an EARLY only calculation with no site file, it is not possible to calculate Type C or D results correctly. Bug #916: When running a calculation with 596 uncertain variables, WinMACCS fails when trying to create a report, 'SampleRank.out,' causing the calculation to abort. Bug #919: Open a project created in WinMACCS 3.6.2 in a later version of WinMACCS (e.g., v3.6.3), the DCF values entered in the old project were lost. Additionally, an excessive number of error messages are reported when processing the ranks and correlations of these DCF variables that are dropped. Bug #960: The name of the cyclical file used in a given calculation cannot be determined by looking at the MACCS2 input or output cards. WinMACCS does not encode this information in the input files
WinMACCS v3.6.2		Risk Informed Emergency Planning	Created August 2010. Bug #517: To adhere to QA procedures comments must be inserted into WinMACCS. The following internal documentation will be provided in the main program driver module for each software component: • program name and version identifier • brief description of the program • original source of the program • name of author • history of modification, including name of modifier, extent, and date of modification • proprietary details (if applicable) • computer language and version • necessary hardware and software components used • documentation references Bug #525: Modify WinMACCS so it will continue to work with the newer version of DEF. Bug #529: The following regression problems will not run – '48_angular_Test' and 'ESP8a.' Bug #530: Sample problem 'ind_bro' will not run.
WinMACCS v3.6.1			Created August 2010. Bug #524: Within the WinMACCS Project Properties form, Dose tab, select Create DCF file. Run a sample EARLY problem that creates a DCF file. On the scope tab, set problem to ATMOS only and run a simulation. WinMACCS tries to populate the DCF template and fails because the template file doesn't exist. MACCS2 does not run. Bug #526: Allow a user to input fraction of population by sector per cohort. Bug #528: Change NUMCOR by changing the site file from 16 sectors to 32 sectors in one of the NRC sample problems. The network evacuation and speed forms were previously flagged as done (for 16 sectors). These forms should be flagged as "ToDo", but are not. Enhancement: Integrated SUMPOP option into WinMACCS.
WinMACCS v3.6.0	May 2012 (Public)	SOARCA	Created May 2010. Modified version ID as per release protocol. Identical to v3.5.0 except version number and date and the following bug fixes and enhancements.
Version	**Released**	**Application Use**	**Version Description**
WinMACCS v3.6.0			Bug #497: Each user has the ability to set their own directory for WinMACCS.

(continued)			Bug #506: Problems have been found when doing documentation. These are as follows: • RISTHR has no units. • Interface reports units in km • Risk is from SPAEND(I1Dis4-1) to I1Dis4, 'inner interval' is not right. • "Skin" selection for Centerline Dose is not working correctly. • IANG_B only supports up to 16 sectors. This should be 1 to 64. • IHRDIR only supports up to 16 sectors. This should be 1 to 64. • Modify description of variable DURBEG. The description refers to variable REFTIM. This is incorrect. • CTHALF should be set to 3.15E13 for upper bound. • Missing units, TGSBEG and TGSEND (Julian day) Bug #516: Changed upper bound of IHRDIR from [1,16] to [1,NUMCOR] Bug #512: Review name of forms 'Dose by Grid Element' and 'Air and Ground Concentrations by Grid Element' (Type C and D output). Main output reported is 'Land Area Where Threshold Is Exceeded.' Enhancement: Added an option off of the Execute menu – Recover DEF Output. Enhancement: If database table, 'appsetting', has field Distribute set to false, then Execute Advanced form will adjust to not show timer settings labeled "Distributed Execution Framework Parameters." Enhancement: Modify form 'frmSelectFiles.' Replace the two existing labels with one that indicates that right click can be used to add or delete groups of selected files. Enhancement: Change description comments from future (usage of word "will") to present ("are"). Enhancement: Updated descriptions for the following variables: • CHNAME • CORSCA • CTCOEF1, CTCOEF2, CTCOEF3 • CTHALF1, CTHALF2, CTHALF3 • DISPMD • DSCRLT • EFFACY • EFFACY_TH • ELEVCONC • ELEVDOSE • FDPATH • Variables I1... or I2.... • INDXBN • INWGHT • ISTRHR • LBRRATE
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.6.0 (continued)			• LVLDEC • MDNFAC • MNDMOD • NRWTRM • NSMPLS_DAY • NUCLIDED • ORGNAM7 • POPFRAC • POPFRAC_TH • PDELAY • PWLDOS • PWLFAC • RISTHR • SPAEND • TFWKNF • WinRos Enhancement: Code in a set attribute of a new project to 'Normal.' Windows-Vista new project files are being set with the attribute 'ReadOnly.'
WinMACCS v3.5.0	September 2009 (NRC Internal)		Created September 2009. Modified version ID as per release protocol. Identical to v3.4.6 except version number and date and the following bug fixes and enhancements. Bug: When the database was upgraded from an older version, none of the entries in table 'usrDEFruns' was copied. Bug: If there are more than one temporary projects in the project directory, WinMACCS was not allowing you to open the project. Bug: If there is more than one DEF run with an error status in the database, cycle through all runs and allow user to pick which one they want to change status from error to wait. Enhancement: The following version of DEF was used: 1.1.1.7 based on build 426 in Subversion. Bug: When running in DEF mode, number of simulations in Run Models dialog was set to 4. Cyclical was turned off, so only one simulation should have been run. Bug: When running 2,000 simulations, not all status checks (OK or NO followed by a MACCS2 error message) were reported in the Results windows. Bug: Report was not created automatically when running a DEF simulation. Bug #454: Modified 'SaveAs' behavior. Contents of Input and Output directories were copied to the project. This is no longer the case.
WinMACCS v3.4.6			Created September 2009. Bug: When opening an existing project, if DEF run has not been completed, the user is put into the state of waiting for the job to be completed.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.4.6 (continued)			Bug: WinMACCS crashed when running DEF. It was speculated that this was related to updating the graphical user interface with respect to run status. Bug: If a network error in DEF occurs, the status flag for the DEF run is set to error in the WinMACCS project database. The only way to continue the job in WinMACCS was to open the project database and set the status back to wait. Bug: Size of database becomes excessive when running many simulations.
WinMACCS v3.4.5			Created August 2009. Enhancement: Add ability to have uncertainty in Dose Conversion Factor (DCF) Files. Enhancement: Add ability to submit a run to the Distributed Execution Framework (DEF) and check for the status of the job submission.
WinMACCS v3.4.4			Created February 2009. Bug: When running a SORCA problem, an error is generated as follows – "Cannot open any more tables. Possible Software Bug from SortDescription." The MACCS2 problem ran, but the summary report was not successfully generated. Bug #451: If the Input directory was missing from the project directory and the user clicks the Run button, a misleading error message was generated, the ATMOS template file is not saved, and an unrelated parameter modification form was opened. This made it difficult for the user to diagnose the problem. Bug #477: If you save your project as a different name, it still thinks the original is open. Thus, it gives you an unnecessary warning if you open the original file. Bug #478: Show full project name with title bar of WinMACCS. Abbreviated names also show up in the new project dialog box. Bug #480: Ask user before deleting model1.out. Enhancement: Add new feature to load and run WinMACCS in batch mode.
WinMACCS v3.4.3			Created December 2008. Bug: Unable to run COMIDA2 problem from within WinMACCS. Bug #470: Within an output request, summary report sorts descriptions in alphabetical order. This has the effect of some entries not being in expected ascending numerical order. Bug #474: Reports are not being created when running Nonuniform Bin Sampling. A message is being reported in the summary report as follows – "Unable to transform CCDF. CCDF probability not between 0 and 1 inclusive."
WinMACCS v3.4.2			Created September 2008. MACCS2 training class version based on v3.4.0. Only used for demonstration purposes.
WinMACCS v3.4.1			Created August 2008. Bug: Within an output request, summary report sorts descriptions in alphabetical order. This has the effect of some entries not being in expected ascending numerical order. Bug #463: The Meat/Milk Ingestion form should have the same limits and the same look as the other ingestion transfer forms.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.4.1 (continued)			Enhancement: In the form 'frmSelectFiles,' used for Cyclical execution, add a context sensitive right click when the mouse is in the area labeled "Double click file to add to list."
WinMACCS v3.4.1 (continued)			Enhancement: Modify the following variables to allow uncertainty: • PLHEAT • PLHITE • PLUDUR • CORINV • IBDSTB • ISTRDY • ISTRHR • RNRATE • CYDIST • CYCOEF • DURBEG • ALPHA Enhancement: Remove the allowance of uncertainty for the variable – GENERATION
WinMACCS v3.4.0	March 2008 (Public)		Created March 2008. Modified version ID as per release protocol. Identical to v3.3.1 except version number and date and the following bug fixes and enhancements. Bug: Discovered that user can click the Run button at the same time a previous Run click is still being serviced, causing file conflicts and error messages to be generated, depending on at what point in the process the Run button is clicked. Bug: The 'SaveAs' operation does not retain its directory. Bug: The operating system would act sluggishly when a model execution was running because MACCS2 was given equal priority to user interface interrupts. Bug: Legend window is resizable. This feature was useless and was disabled. Bug #432: When the 'SaveAs' option was used, duplicate Results and Project windows were created. However, these were not visible because they were under the other windows. Bug #449: In exploring Bug #432, integrating the operation to prompt the user to save changes to opened parameter windows, another problem was discovered. This inconsistency was due to the many custom forms that have been added. This problem is not a bug, but an inconsistency in form behavior with respect to the Run button on the Run Models form and now the 'SaveAs' behavior. Enhancement: Form 'frmComments' was modified with respect to Bug #449.
WinMACCS v3.3.1			Created January 2008. Bug: WinMACCS crashes under the following circumstances: • Double click on a project file (.mxd) to open a project in WinMACCS. • Notice that the legend isn't showing. • Select Edit->Show Legend – WinMACCS then crashes.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.3.0	January 2008 (Beta Test)		Created January 2008. Modified version ID as per release protocol. Identical to v3.2.2 except version number.
WinMACCS v3.2.2			Created January 2008. Bug: WinMACCS crashes when try to copy an empty scenario form to other scenario forms by selecting an empty scenario form (such as Critical Organ) and using the Edit->Modify Form->Copy Scenario Variables function. Bug: The font in the legend did not match the font in the Project window. Bug: WinMACCS was crashing when opening windows using the Find function. Bug: COMIDA2 Transfer Coefficients form variable type description field for TC_Beef was not fully displayed. Bug: TMPACT description was modified to allow it to fix on form. Bug: Automatic propagation of multi-scenario forms was not implemented at the project properties level (i.e., if the number of scenarios increased, propagation did not take place), nor at the import level (i.e., importing EARLY multi-scenario decks did not cause propagation). Bug: If variable ESPGRD or IDIREC was not defined, then a warning message was displayed in the evacuation form (frmEvac) when the form was opened stating there was an inconsistency that could be corrected if the OK is clicked. Bug: On-line help did not work in the evacuation form. Enhancement: Modified 'About' box. Enhancement: Updated on-line help and added links to help for all new forms. Enhancement: Implemented right mouse click operation on form names shown in 'Project.' Enhancement: WinMACCS was modified to allow CHRONC output requests Type 10, 11 and 12 when there was no food model with the understanding that these changes would be made in MACCS2 to support this new feature.
WinMACCS v3.2.1			Created December 2007. Bug: User was unable to reset the Evacuation Speed or Evacuation Direction maps to the default value. Bug: "Reset to Default" function was not supported if the evacuation map was opened. Bug: Inconsistency was found with respect to the custom comment form as follows: If the user has the comment form open, selects "Reset to Default," nothing seems to happen on the form. But if the user clicks cancel and reopens the form, the data is gone. Bug: The "Reset to Default" option was deleting comments if the form was opened, but not deleting comments if the option was used for a selected form. Bug: When adding a speed multiplier on an evacuation map, allow inserting of lower value without modifying the selections already made. Bug: A crash of WinMACCS occurs in function 'OpenParamWindow.' Bug: Multiple cohort speed multiplier import function doesn't work. Bug: If the user typed, back spaced to the beginning of the comment form and clicked save, nothing was saved. However, the icon (solid triangle) indicates that something is there when there isn't. Enhancement: Added a legend.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.2.1 (continued)			Bug: A confusing situation is described as follows: • Open a project with 64 sectors (NUMCOR=64) with three scenarios. • Make sure the Network evacuation direction for scenario two is undefined. • Make sure the Network evacuation direction for scenario three is defined. • Change NUMCOR to 16. • Open Network evacuation direction form for scenario one. • Modify and save form. • Scenario two was undefined, so data was copied to scenario two via the new propagate function. However, scenario three was defined, so data wasn't copied. • When tried to run, scenario three forms opened with a complaint about NUMCOR. Bug: If the user created a new project and closed the project without saving, the icon settings do not persist. Bug: A common problem is that if a linked variable is inconsistent with the number of rows of the vectors or the array on the form, it is flagged as in error. Bug: Validation error when running as follows – When the user clicks "Run Simulation" form validation isn't done, only variable validation is complete. Enhancement: When directions and speeds are input into Scenario Group 1, the graphic display should show the current values on opening graphic displays for subsequent scenario groups. Enhancement: Form validation was modified.
WinMACCS v3.2.0	July 2007 (Beta Test)		Created July 2007. Modified version ID as per release protocol. Identical to v3.1.18 except version number and date and the following bug fix. Bug: The limit number of characters on a card image is not consistent with MACCS2.
WinMACCS v3.1.18			Created July 2007. Bug: Updated 'UpgradeDatabase' setting for the value of FDPATH to be consistent with model settings. Bug: Corrected error in Custom Report form. Bug: MapGen map grid for 0.16 km is not being displayed. Bug: Creating a 'New Project' doesn't allow all sub-models settings to define CHRONC. Bug: When the EARLY model is 'off,' the form "Organs of Risk FGR-13" is shown with a red hexagon, which is an error since the form is in the EARLY model. Bug: WinMACCS is not setting the DCF sub-model when importing EARLY input files. Bug: When importing a test file, the 'Properties' form was not flagged as 'Done.' Bug: When importing a test file, the 'Radionuclides\Chemical Names' was not defined. Bug: When importing a test file, an error was flagged in the 'appSubModelCards.' Bug: When importing multiple test files, an error in the 'Evacuation Scenario 2' setting was discovered. Bug: Evacuation model settings (evacuation type) only support Scenarios 2 and 3 instead of 20 scenarios. Bug: Error in LHS due to invalid variables STR_USR_DRIVE and STR_USR_DIR.
Version	**Released**	**Application Use**	**Version Description**
WinMACCS v3.1.18 (continued)			Bug: Validation step is failing in the 'Enforce Rank Order of Uncertain Variables.' Bug: Correct misspellings and descriptions of all CCDF entries.

Version	Released	Application Use	Version Description
			Bug: Opening an older WinMACCS file that did not support FGR-13 sets two dose models 'on.' Bug: Ranks are lost when opening an older database. Enhancement: Default sub-model setting for mixing height was set to consider the model 'off.' Enhancement: Updated behavior of the Report window, to open in Notepad when created. Enhancement: Change the reference in the 'Results' window when importing from "Processing input lines for evacuation scenario 1" to "Processing input lines for file selection 1." Enhancement: Change name of sample projects from MACCS_DOCS to WinMACCS Samples.
WinMACCS v3.1.17			Created June 2007. Bug: Correct BRGSMD variable error warning. Bug: Error messages in 'frmParam' modified to accommodate the user rather than the code developer. Enhancement: Update text in the 'Dose' tab from "Linear" to "Linear No Threshold" Bug: Correct spelling errors. Bug: Error message for a missing file is misleading. Bug: Update WinMACCS to allow for 'trailing white space' for older site files. Bug: Modify the name and descript of the variable "Quantiles" in the interface to be consistent with labeling and mathematical definition. Bug: Moved the variables RESCON and RESHAF out of the Emergency Scenario categories and into the EARLY model basic category. Bug: When specify rank order is used but there are no correlations, the report incorrectly states that there are no uncertain variables and does not rank order. Bug: Removed references to uncertain multipliers in Edit Speed Multiplier form since this hasn't been implemented. Enhancement: Modify 'appReportDesc' table in the database to reflect new form names of output. Bug: When opening a form with the FGR dose conversion model set to 'true,' the AT and PL dose models should be been 'not enabled' on the Dose tab, but this was not the case. Bug: WinMACCS crashes when the 'Find Parameter Window' was open due to lack of error handling. Bug: Set the default value of MNDMOD to 'OLD.' Enhancement: Change the upper bound of ISTRHR from 24 to 96. Enhancement: Change label on the Summary Statistics report from "Quantile" to "Probability of Exceedence." Enhancement: Modify user interface behavior of the form 'frmSiteData.frm.' Enhancement: Added text to Dispersion tab on Properties form for the variable MNDMOD. Enhancement: Changed text on Wind Rose tab. Enhancement: Remove double quote on "Grand Mean" in the Summary report. Enhancement: Change default Briggs dispersion model to 'ORIGINAL' instead of 'IMPROVED.'
Version	**Released**	**Application Use**	**Version Description**
WinMACCS v3.1.16			Created May 2007. Bug: If the Results window is made very small WinMACCS crashes.

Version	Released	Application Use	Version Description
			Bug: If a user selects 'Annual Threshold' or 'Piecewise Linear' dose models, then the user can only choose one evacuation scenario.
			Bug: Update the completion status of the Properties form in the function UpdateCompletedForm() when opening an older project that does not support a model type variable that the existing project support.
			Bug: Update the 'Save' feature in the Site Location form for latitude and longitude.
			Bug #212: When running in cyclical mode, an error occurs during the creation of the input file, Parameter Modification form windows were opened.
			Enhancement: Change limits of database variables to support a finer resolution meteorological file.
			Enhancement: Set flag to 'false' for EVACCPU.txt
			Enhancement: Apply new behavior to catch the tab click event and immediately apply changes made on previous tab to all other tabs, but the 'Show Required Forms' button functionality does not change.
			Enhancement: Implement plume meander model.
WinMACCS v3.1.15			Created April 2007.
			Bug: MACCS2 fails when the dose conversion factor file is set to FGRDCF.
			Bug: Modification of the x- and y-axis when clicking the 'Modify Axis' button on the Plot form doesn't support the automatic log-axis scaling added in v3.1.14.
			Bug: Set the variables ORGNAM_DOSFAC and ORGNAM_FGR13 to 'true' in the "ReadOnly" field in the table appVar so the variables are not overwritten.
			Bug #364: The day and night mixing height model should not be available for 'constant' or 'user supplied' weather.
			Enhancement: Adjust the main WinMACCS window to function with various Windows font sizes.
			Enhancement: The form 'frmPlot' was modified with respect to axis labeling.
			Enhancement: Label on the Dose tab of the Properties form for FGR was updated.
WinMACCS v3.1.14			Created April 2007.
			Bug: Users are allowed to make an EARLY results request even though an old FGRDCF file does not support it.
			Bug: Changing the DCF file doesn't change the CRIORG setting every time.
			Bug: If a user changes the DCF file in the Properties form, this can cause values on other forms to be invalid, but WinMACCS does not indicate it.
			Bug: Importing a test file with the new FGR-13 DCF files passed WinMACCS validation even though the site or meteorological files are not defined.
			Bug: If the user has set the "Execute/Refresh Template Input File before Running" check box to 'off,' there are no reports available.
			Bug: WinMACCS will not allow a user to remove Row 16 of the "Organs of Risk FGR-13" form.
			Bug: If MACCS2 did not successfully complete execution, and a report was requested, WinMACCS tries to read the binary file anyway to create the report and results in multiple error windows popping up that the user must manually close.
Version	**Released**	**Application Use**	**Version Description**
WinMACCS v3.1.14 (continued)			Bug #292: Linear x- and y-axis are default plot assumptions when log-log or linear-log are more reasonable for the default settings.

Version	Released	Application Use	Version Description
			Enhancement: Rename caption for the form named "ATMOS Radial Grid" to "Spatial Grid." Enhancement: Closing the Properties form was speed up. Enhancement: Added support for subset of organs for FGR-13 DCF files.
WinMACCS v3.1.13			Created March 2007. Bug: Importing an older sample problem fails WinMACCS due to Maximum Mixing Height Based On Daylight model. Bug #272: Remove developer comments in error messages for WinMACCS sample problem. Bug #289: Implement a WinMACCS option to allow deleting of input and/or output files after they are created. Bug #361: Updated WinMACCS to use new angular resolution for SECPOP.
WinMACCS v3.1.12			Created February 2007. Bug: Function Floor, which returns the integer part of a number, did not work correctly for numbers between -1 and 1 non inclusive. Bug: Evacuation tab in the Properties form incorrectly allows the selection of IPLUME=2 for network evacuation. Bug: Status of parameter modification forms with variables in comment with updated variables is being updated in the database, but the icons in the GUI showing 'complete' or 'to do' status are not correctly updated. Bug: When resetting variables on a form to their default value via Edit – Reset Form Variables to Default, the status of other forms was not correctly updated. Bug #318: Implement polar based network evacuation and speed multiplier forms that support background maps. Bug #336: Implement the new CHRONC variables LPROTIN, LBRATE, and LGSHFAC. Bug #339: Increase the number of evacuation scenarios from 3 to 20. Enhancement: Change the label in the Properties form from "Heat Model" to "Power Model." Bug #351: Move specification of the KI model from Evac/Rotation tab of the Properties form to the Dose tab. Bug #352: Add new model, FoodOff into the Properties form Food tab. Enhancement: Update captions, organize EARLY evacuation scenario variables, and remove the constCancer table from the database. Enhancement: Place LASMOV and NUMEVA on the same form.
WinMACCS v3.1.11			Created October 2006. Bug #297: Add a form to allow users to request a list of results for LHS realizations. Enhancement: Modify the category symbol shown on the WinMACCS interface when none of the forms are required by the current model.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.1.10		Third Security Study for Indian Point and Limerick	Created August 2006. Bug: Unable to delete rows from the correlation coefficient window. Bug: Incorrect error message when a variable is changed from uncertain to constant and the variable has been used in a correlation coefficient definition. Bug: If there is an abnormal abort of MACCS2, a message is printed out in the results window before the time summary information is printed and hides the error message from the user; unless the user scrolls up on the Results window. Bug #239: It is possible to open the same project in two different instances of WinMACCS. Bug #311: The WinMACCS database grows large each time it's used and doesn't seem like there is any way to shrink the database. Bug #314: LSH correlation problem was discovered when problem size was increased from 400 to 800. Bug #313: Bring up an hour glass in the interface when the program is importing results from LHS into the database. Enhancement: Update message when the current database is older than the version of WinMACCS used. Enhancement: Modify input to LHS so that raw and achieved rank correlation matrices are reported in the message file, LSH.msg.
WinMACCS v3.1.9			Created July 2006. Bug: Unable to pass validation when executing with CYSIGA (1) set to uncertain. Enhancement: Move, rename, and combine specified forms. Bug #277: Modify units for DTHLIF. Bug #278: Modify plot labels for CDF and CCDF results. Bug #287: Change symbols to accommodate color vision impairment. Bug #302: After importing a project, Emergency Scenario 2 flagged DOSHOT as required instead as an optional variable. Bug #303: When importing an older database, NUMWPI and NAMWPI are flagged red, but the values are there. Bug #319: Add IPLUME=2 to allowable values for Network evacuation. Bug #324: Cannot run sampling for Scenarios 2 or 3. Variables are not coded with the correct names in the LHS input file.
WinMACCS v3.1.8			Created June 2006. Bug: Add units of Sieverts to variable EFFACA. Bug: If VDEPOS is set to be continuous linear distribution and the PSDIST window is opened, an extra column appears on the form corresponding to the individual distribution parameter values of VDEPOS. This is an error. Bug: An error occurs when "Reset Variables to Default" is selected from the main edit menu when the Properties form is highlighted in the Parameters tab. Bug #225: Add a new custom form allowing a user to enter a comment global to the problem. Bug #274: Add three variables to WinMACCS to implement day/night time mixing – MAXHGT, LATITU, and LONGIT.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.1.8 (continued)			Bug #290: Modify algorithm that copies form comments to input files so it does not repeat comments. Enhancement: Allow a user to cancel the 'Close' operation if a project has changed.
WinMACCS v3.1.7			Created April 2006. Created to put into a setup.exe file. This was done to ease multiple installations of WinMACCS for demonstration of capabilities. This version is the same a v3.1.6 with the enhancement below. Enhancement: Remove the setting in the Initialize2000.mdb file that enables the usage of the grid form WinMACCS. The removed files are added to the project during installation to enable the use of the grid.
WinMACCS v3.1.6		Second Security Study for Grand Gulf and Sequoyah	Created November 2005. Enhancement: Modifications made to interface with United Devices grid software. Enhancement: Add Java virtual machine installation to the WinMACCS installation packed but will not be part of the source code control.
WinMACCS v3.1.5			Created November 2005. Version 3.1.5 was based on 3.1.4. This was a nonworking intermediate version developed at the NRC during integration of distributed software.
WinMACCS v3.1.4			Created November 2005. Bug #269: Correlation coefficient validation checked for the coefficients between -1 and 1 to be inclusive when they should not have been included as valid coefficients. Bug #270: When a new simulation started, a MACCS2 console window opens on the top of the current application that had focus, making it difficult to work on another project with WinMACCS running in the background. Bug #271: A user can take an older version of WinMACCS and open it in a newer version of the database without being notified that the database is being opened in a newer version of WinMACCS.
WinMACCS v3.1.3			Created October 2005. Bug: COMIDA2 uncertainty calculation fails at the LHS step.
WinMACCS v3.1.2			Created October 2005. Bug: In the form to modify the distribution associated with a variable, the grid shown when selecting an empirical distribution is not totally visible when the distribution is entered.
WinMACCS v3.1.1			Created October 2005. Based on v3.0.3. Bug: If a user pastes a number of rows greater than the existing number, the paste is successful. But at this point, the user is unable to remove new rows added, and could only click the cancel button and try again. Bug: Number of rows of Variable DLTSHL is equal to variable NUMEVA. However, NUMEVA for scenario number one was used for scenarios two and three instead of the variable NUMEVA_2 and NUMEVA_3 (note: The _2 and _3 do not show up in the user interface). Enhancement: Emergency scenario 2 and 3 forms containing bounds definitions are now flagged as required (rather than optional) forms. Enhancement: Evacuation scenario variables DOSHOT and TIMHOT were placed in their own forms.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.1.1 (continued)			Bug #250: Open a parameters modification form to CWASH1. Double click on CWASH1 to open the modify form. Select the Poisson distribution, and click "Apply Distribution". The plot does not display. Instead, an error message displays. Bug #220: It is possible to graph undefined data. Enhancement: Description field of size 80 in table outResultHeader in the template database Initialize2000.mdb is increased to 120. Enhancement: Database description of variables shown on the Number of Bins form (found in ATMOS/Weather category) was modified. Enhancement: Variables DOSHOT, ENDEMP, LASMOV, and NUMEVA are now required instead of optional for Scenarios 2 and 3, depending on the model chosen.
WinMACCS v3.1.0	April 2005 (NRC Internal)		Created April 2005. Modified version ID as per release protocol. Identical to v3.0.2 except version number.
WinMACCS v3.0.3			Created September 2005. Bug #18: Pasting in values for NAMWPI did not work properly. Bug #54: Create a form to display probability distributions as selected by the user in the Distribution window. Bug #98: Add comment user inputs in WinMACCS forms to MACCS2 input deck created. Bug #178: If METCOD = 2 or METCOD = 5, then NSMPLS is a required parameter identifying either bin numbers or days of the year. Bug #233: Modify limits of INWGHT from [1,8760] to [0,8760] Bug #234: Including pseudostable radionuclides is shown as optional. However, if you don't list any pseudostable isotopes, MACCS2 fails. Bug #235: EARLY constand/CHRONC constant forms were not being updated as "complete" when importing. Bug #241: Network evacuation requires IPLUME=3. IPLUME=2 is not allowed. Within the WinMACCS interface, IPLUME=2 is allowed. This is an error. Bug #243: Change the headings of the empirical grid on the Parameter Modification form that relates to probability distribution selection. Bug #244: Increase maximum number of particle-size deposition groups that can be defined in WinMACCS interface from 10 to 20. Enhancement: Update WinMACCS so documentation related to distribution options is shown in Modification window. Enhancement: Modify WinMACCS include a distributed computing option. Enhancement: Add timing results to WinMACCS so that the time of execution running distributed options can be compared to the non-distributed (or single PC) options.
WinMACCS v3.0.2		Protective Action Recommendation Study	Created April 2005. Considered first version of WinMACCS subject to the MACCS2 QA procedures. The intention was to release v3.0.0; however, last minute fixes resulted in the release of this version. Enhancement: Modify the text box on the 'About' box in WinMACCS.
Version	**Released**	**Application Use**	**Version Description**

Version	Released	Application Use	Version Description
WinMACCS v3.0.1			Created April 2005. Bug: Modify handling of undefined variables written onto the MACCS2 binary file.
WinMACCS v3.0.0			Created April 2005. Developmental version with the incorporation of the MACCS2 ATMOS, EARLY, CHORNC, and COMIDA2 models.
WinMACCS v2.1.10			Created October 2004. Minor modifications and bug fixes made.
WinMACCS v2.1.9			Created October 2004. Bug: Parameter modification form made WinMACCS unusable.
WinMACCS v2.1.8		Initial Security Study for Surry and Peach Bottom	Created October 2004. Intermediate version with the incorporation of the MACCS2 ATMOS, EARLY, and CHRONC models. Validation algorithms improved. User interface bugs fixed.
WinMACCS v2.1.7			Created August 2004. User interface bugs fixed. Interface made more user friendly. Enhancement: Add support for Type C and Type D output Enhancement: Integration of binary files into WinMACCS Enhancement: Integrate piecewise linear model into WinMACCS
WinMACCS v2.1.6			Created February 2004. Enhancement: Add uncertainty support for COMIDA2.
WinMACCS v2.1.5			Created February 2004. Enhancement: Add uncertainty mode in WinMACCS to support COMIDA2.
WinMACCS v2.1.4			Created September 2003. User interface bugs fixed. Interface made more user friendly. Enhancement: Modify binary file design.
WinMACCS v2.1.3			Created September 2003. Enhancement: Add menu selection 'Refresh File View' and 'Import MACCS2 Input File.' Enhancement: Add 'boolProjectDirty' so if user closes project, user is prompted to 'save' if the project has changed. Enhancement: Add support for upgrading the project database if 'Initialize2000.mdb' is more recent than project user requests to open. Enhancement: If user requests to set a form to the default value and has the form opened, the project will reopen form for user after this operation is completed instead of leaving form closed.
WinMACCS v2.1.2			Created August 2003. Intermediate test version.
Version	**Released**	**Application Use**	**Version Description**

WinMACCS v2.1.1	April 2003 (NRC Internal)		Created April 2003. Enhancement: Support of multiple EARLY cohorts. Enhancement: Support of cyclical execution option. Enhancement: Add KI model for EARLY model Enhancement: Add linear threshold models. Enhancement: Add plume buoyancy models. Enhancement: Add capability to run CHRONC and COMIDA2 in deterministic model.
WinMACCS v2.0.0	September 2002 (NRC Internal)		Created September 2002. Developmental version with the incorporation of the MACCS2 ATMOS and EARLY models.
WinMACCS v1.1.0	January 2002 (NRC Internal)		Created January 2002. Changes based on comments from NRC regarding version 1.0.0. Validation of form value inputs. General improvements to the graphical user interface. Enhancement: Add ability to import MACCS2 formatted input files into WinMACCS.
WinMACCS v1.0.0	October 2001 (NRC Internal)		Created October 2001. Initial developmental version with the incorporation of the MACCS2 ATMOS model.

Table 3:   SECPOP Version Development

Version	Released	Application Use	Version Description
SECPOP v4.0.2			Created January 2012. Working copy. In progress.
SECPOP v4.0.1			Created May 2011. Working copy. Internally tested but not alpha tested.
SECPOP v4.0.0			Created May 2011. Working copy. Internally tested but not alpha tested.
SECPOP v3.13.1	NRC (Public)	SOARCA SOARCA Peach Bottom Uncertainty Analysis Spent Fuel Pool Scoping Study Risk Informed Emergency Planning NRC BWR Filtered Containment Venting Analysis	Created January 2008. Enhancement: Update of SECPOP description. Enhancement: Modify the background of a few of the objects displayed on the Setup form.
SECPOP v3.13.0			Created January 2008. Modified version ID as per release protocol. Identical to v3.12.6 except version number and date and the following bug fix and enhancement. Bug: When using a population multiplier of 0.1, results are slightly different than what is expected when compared to the same problem using a population multiplier of 1.0. In other words, the expected population should be 1/10 of the original population but is not the case. Enhancement: Subroutine PopCalc was modified with respect to the calculation of the population per user defined sector.
SECPOP v3.12.6			Created December 2007. Bug: If the SECPOP configuration file contains incorrect information, then the program does not continue but shows an error message and shuts down, but the user is required to edit the configuration file using a Windows editor such as notepad. The only errors that SECPOP checked for previously were missing county and census files. Enhancement: Add support for comment lines in the county data file. Enhancement: Remove the \DEBUG flag is present in the SECPOP.CFG file. This is a feature no longer needed for troubleshooting by the developer. Enhancement: Updated the county file and census file validation when "SaveChanges" is clicked.

Version	Released	Application Use	Version Description
SECPOP v3.12.6 (continued)			Enhancement: An economic multiplier was added to the problem file. Enhancement: Modify the MACCS2 formatted site file header that SECPOP2000 creates to include name of census and county files used in the calculation, and include time of run. Enhancement: Because census and county files are now validated, SECPOP behavior was changed so the user cannot change paths and/or files and use these changes without clicking the save button.
SECPOP v3.12.5			Created November 2005. Bug: If \DEBUG flag is present in the configuration file, the setup was changed and saved, and then an error message referring to a county code of zero was generated when the last record of the census file is read. Bug: An error report that says calcErrors.txt cannot be opened because it is already open. This occurs when the debug flag is 'on.' Enhancement: Initial release of the Census2000.mdb database to ensure correct formatting of the data.
SECPOP v3.12.4			Created October 2005. Bug: Integrity check is not catching county ID's referenced by census blocks, but not present in the county file. Bug: Error checking is only done when the \DEBUG flag is present in the configuration file. Enhancement: Remove error check for zero land area (does not include check for water area). Enhancement: Add message box to direct user to calcError.txt if integrity check does not pass.
SECPOP v3.12.3			Created September 2005. Bug: Slow runtime if \DEBUG flag is on. Enhancement: Refresh the SECPOP screen after every census block is processed. Enhancement: Create new file, calcErrors.txt, whenever \DEBUG line is present in the configuration file. Enhancement: Remove 'estimate time' system clock, and replace with progress bar.
SECPOP v3.12.2			Created September 2005. Bug: Three lines of comments are written into the MACCS2 input file instead of two. Bug: SECPOP terminates with an error message for the Peach Bottom sample problem. Enhancement: The file, calcdmp.txt, was modified to include more information.
SECPOP v3.12.1			Created August 2005. Bug: The census and count drop down menus are not initialized. Enhancement: Change all references to hard coded version numbers to reflect actual version numbers of the executable. Enhancement: Create a new subroutine, ReadCountyFile, to isolate and modularize changed code. Enhancement: Add error handling to subroutine PopCalc. Enhancement: Modify subroutine print_MACCS_input_file. Enhancement: Verify PopMod formats data correctly. Enhancement: Add new optional line, \DEBUG, to the configuration file. Enhancement: Save feature for current county file and current census data as text files, countdmp.txt and censusdmp.txt, respectively. Enhancement: Add detailed report with respect to SECPOP calculation, calcdmp.txt.

Version	Released	Application Use	Version Description
SECPOP v3.12.0.1	NRC (Internal)	Initial Security Study for Surry and Peach Bottom Second Security Study for Grand Gulf and Sequoyah Third Security Study for Indian Point and Limerick	Created June 2003. Bug: Fixed problem with the Miles/Kilometers label. Bug: Problem with county record indexing. Bug: Economic data is incorrectly formatted for MACCS2. Enhancement: Include an updated version of the SECPOP manual. Enhancement: Add error handling and data integrity check. Enhancement: Improved the file selection functionality on the Setup form.
SECPOP v3.12.0.0			Created May 2003. Enhancement: Revise the date in the 'About' form. Enhancement: The verification of the County97.dat file is adequate. Recoded in JavaScript. Commenced quality assurance documentation.
SECPOP v3.X			Previous versions of SECPOP were coded in Visual Basic v6. Used 2000 census data and 1997 county data files. No quality assurance is available.
SECPOP2000			Removed SECPOP90 regional analysis. Used either 1990 or 2000 census data.
SECPOP90	NUREG/CR-6525		Supports two types of analysis; site and regional. Used 1990 census data.
SECPOP 1980's	NUREG-1150		Used 1980 census data, but no version of SECPOP was identified in NUREG-1150.
SECPOP			Written in 1973 by W. Athey of the EPA. Designed to run on mainframes. Used the 1970 census data. Used to support a study on air quality. NRC adopted the program.

Table 4:   MELMACCS Version Development

Version	Released	Application Use	Version Description
MELMACCS v1.7.1	January 2011 (Public)	Risk Informed Emergency Planning Spent Fuel Pool Scoping Study	Created January 2011. Bug: Unable to open a read .PTF file using Windows 7.
MELMACCS v1.7.0		SOARCA Peach Bottom Uncertainty Analysis NRC BWR Filtered Containment Venting Analysis	Created January 2011. Modified version ID as per release protocol. Identical to v1.6.1 except version number and the following enhancement. Enhancement: Update MELMACCS.inf file to exclude chemical groups B, Sn, Cd, and U for consideration to the output file.
MELMACCS v1.6.1			Created November 2010. Bug #527: Allow MELMACCS to support either having none, either, or both cesium iodide, CsI, and cesium molybdate, Cs_2MoO_4, chemical groups. Bug #531: Allow the addition of new chemical groups and allow the user more control of removing chemical groups. Bug #532: Modify the 'readINF.bas' file to support a flexible way to add new inventories. Enhancement: An error message indicating that an expected but missing chemical group entry for CsI or Cs_2MoO_4 was expected from the MELCOR plot file. Enhancement: Modify error handlers to allow the user to better understand where the error is occurring.
MELMACCS v1.6.0			Created October 2010. Modified version ID as per release protocol. Identical to v1.5.6 except version number and date and the following bug fix. Bug #518: Incorporate previous subversion changes and developer comments into the source code comments.
MELMACCS v1.5.6			Created May 2010. Enhancement: Update the description of the release path threshold and plume release threshold.
MELMACCS v1.5.5			Created February 2010. Enhancement: Implement error handler in order to write errors to log file and have default answers to dialog boxes if user is running in batch mode. Enhancement: Implementation of path mass threshold. Enhancement: Implementation of release mass threshold. Enhancement: Implement batch processing.
MELMACCS v1.5.4			Created December 2009. Bug: When 'cancel' was clicked, MELCOR plot file was not closed. Bug: If MACCS-NPATH is zero on a MELCOR plot file, an uninformative error message is displayed. Bug #501: MELMACCS does not read MELCOR 2.1 '.PTF' file.

Version	Released	Application Use	Version Description
MELMACCS v1.5.4 (continued)			Enhancement: 'clsBinaryFileStream.cls' was rewritten to support MELCOR plot files greater than 2 GB. Enhancement: WinAPI error messages are reported. Enhancement: 'clsBinaryFileStream.cls' was modified to interface with 'clsReadFile.cls.' Enhancement: Add new dialog box to allow user to input flow thresholds and release thresholds.
MELMACCS v1.5.3			Created July 2008. WinMACCS/MACCS2 training class version based on v1.5.2. Only used for demonstration purposes.
MELMACCS v1.5.2	September 2007 (Public)	SOARCA	Created September 2007. Bug: Core inventory selected by user is not reported in MACCS2 radionuclide input file. Bug: First non-zero flow reported on each plot reflected first plume flow instead of first radionuclide flow. The first non-zero flow could be steam. Bug: The amount of iodine, cesium and molybdate in CsI and Cs_2MoO_4 fails testing with a warning message due to single vs. double precision variables. Enhancement: All chemical groups are auto selected as a default. Enhancement: Add a button to the form that displays the fraction of mass released. Enhancement: Add a description of the MELCOR run from the '.PTF' file to the MACCS2 radionuclide input file. Enhancement: Report the version number in the user interface.
MELMACCS v1.5.1			Created August 2007. Enhancement: Add core inventory and data representing the Peach Bottom – BWR for medium burnup.
MELMACCS v1.5.0			Created August 2007. Bug: Modify error message to report which release number and chemical group had an error. Bug: Modify error handling for a closed plot window. Enhancement: Add error checking to MapTIToMaccsVars. Enhancement: Modify deposition velocity default. Enhancement: Add Cs_2MoO_4 as time independent data. Enhancement: Add additional error checks for CsI and Cs_2MoO_4. Enhancement: Modify '.ini' file to reflect the inventory used in the NRC Best Practices sample files. Enhancement: Modify the interface to include the reactor type as a choice on the same form that allows users to select chemical groups.
MELMACCS v1.4	May 2005 (NRC Internal)	Second Security Study for Grand Gulf and Sequoyah	Created May 2005. Enhancement: Modify the 'Select Dry Deposition Model' screen to include a 'Disable deposition velocity results in MACCS2 file' selection.
MELMACCS v1.3			Created January 2005. Enhancement: Add a new dry deposition velocity calculation based on expert elicitation data.
MELMACCS v1.2			Created July 2004. Modified version ID as per release protocol. Identical to v1.1.0.9 except version number and date and the following bug fix. Bug: Correct error in core inventory data.

Version	Released	Application Use	Version Description
MELMACCS v1.1.0.9		Initial Security Study for Surry and Peach Bottom Third Security Study for Indian Point and Limerick	Created January 2004. Bug: Error in calculation particle size distribution.
MELMACCS v1.1.0.8			Created May 2003. Enhancement: Add inputs for MACCS2 plume buoyancy model.
MELMACCS v1.0			Created December 2002. First version of an interface to convert a MELCOR output plot file (.PTF) to a MACCS2 radionuclide input file (.INP).