REVISION 58 – March 11, 2019

I. NEW_INPUT_FILES
Contains a list of new input files that are being tested.

II. NEW_OUTPUT_FILES
Contains a list of new output files being review.

III. Existing output files
List of changes in output files

IV. Existing input files
List of changes in input files

V. Other
Other files that were modified in this revision.

I. NEW INPUT FILES

- **INITIAL.AQU** – New file

Location in FILE.CIO

```
! aquifer
type input_aqu
   character(len=25) :: init = "initial.aqu"
   character(len=25) :: aqu = "aquifer.aqu"
end type input_aqu
type (input_aqu) :: in_aqu
```

initial.aqu					
NAME	ORG-MIN	PESTICIDES	PATHOGENS	HEAVY_METALS	SALTS
low_init	low_init	no_ini	no_ini	null	null
high_init	high_init	low_ini	low_ini	null	null

- These files are required for those input datasets that read a constituents.cs file (2-Stage/saturated buffer)
  SALT_WATER.INI

salt_hru.ini:													
NAME	SO4	Ca	Mg	Na	K	Cl	CO3	HCO3	CaCO3	MgCO3	CaSO4	MgSO4	NaCl
no_salt													
soil	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2
plant	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2
low_hru													
soil	19	3.3	1.75	44	1	3.5	5	35	0.2	0.2	0.2	0.2	0.2
plant	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2
high_hru													
soil	1975	330	175	440	10	350	5	350	0.2	0.2	0.2	0.2	0.2
plant	19	3.3	1.75	44	1	3.5	5	35	0.2	0.2	0.2	0.2	0.2
low_aquifer													
soil	19	3.3	1.75	44	1	3.5	5	35	0.2	0.2	0.2	0.2	0.2
plant	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2
high_aquifer													
soil	19	3.3	1.75	44	1	3.5	5	35	0.2	0.2	0.2	0.2	0.2
plant	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2

SALT_HRU.INI

salt_hru.ini													
NAME	SO4	Ca	Mg	Na	K	Cl	CO3	HCO3	CaCO3	MgCO3	CaSO4	MgSO4	NaCl
no_salt													
soil	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2
plant	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2
low_hru													
soil	19	3.3	1.75	44	1	3.5	5	35	0.2	0.2	0.2	0.2	0.2
plant	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2
high_hru													
soil	1975	330	175	440	10	350	5	350	0.2	0.2	0.2	0.2	0.2
plant	19	3.3	1.75	44	1	3.5	5	35	0.2	0.2	0.2	0.2	0.2
low_aquifer													
soil	19	3.3	1.75	44	1	3.5	5	35	0.2	0.2	0.2	0.2	0.2
plant	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2
high_aquifer													
soil	19	3.3	1.75	44	1	3.5	5	35	0.2	0.2	0.2	0.2	0.2
plant	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2

II. NEW OUTPUT FILES

III. EXISTING OUTPUT FILES

Removed the units line from all output files;

IV. EXISTING INPUT FILES

- **PESTICIDE.PST** – Database updated to combine land and aquatic parameters (all example datasets have this updated file as well as in the \database_files sub-directory).
- Remove **PESTICIDE.CHA** and **PESTICIDE.RES** files from FILE.CIO (no longer needed since they are now combined in **PESTICIDE.PST** file
- Remove **PATHOGENS.CHA, METALS.CHA** and **SALT.CHA** files from **FILE.CIO** (in_cha)
- Remove **PATHOGENS.RES, METALS.RES and SALT.RES** from **FILE.CIO** (in_res)
- Changed the order of **SEDIMENT.RES** in **FILE.CIO** (in_res) (moved this after **HYDROLOGY.RES**

- **CHANNEL.CHA** - DELETE THE FOLLOWING COLUMNS (last three columns):
  CHA_PSTreservoir.res
  CHA_LS_LNK
  CHA_AQU_LNK
- **CHANNEL-LTE.CHA** – DELETE THE FOLLOWING COLUMNS:
  CHA_PST
  CHA_PATH
  CHA_HMET
  CHA_SALT
  CHA_TEMP

  Added **ID** to the front of this file;

- **RESERVOIR.RES** – DELETE THE LAST COLUMN:
  RES_PST
- **SEDIMENT.RES** – Carbon and bulk density were added to this file
- **HYD-SED-LTE.CHA** – 1) Carbon added to this file
  2) RTE_DB column taken out of this file
- **PLANTS.PLT** – updated files with DAY_MAT substituted for PLT_HU.
  (Jeff incorporated the Potential Heat Unit Program with this revision)
- **AQUIFER.AQU –** 1) added column AQU_INIT that is cross walked with INITIAL.AQU file;
  2) DELAY column replaced with BF_MAX(previous was named FLO_MAX).

BF_MAX is the baseflow rate
when entire area is contributing to baseflow.

- **SOILS_LTE.SOL** – Fixed a problem with the SILTY_CLAY entries that was duplicated.

- **PLANT.INI** – added initial rotation year to the input file (**ROT_YR_INI** in table below)

plant.ini:										
NAME	PLANTS_COM	**ROT_YR_INI**	CPNM	IGRO	LAI	BIOMS	PHUACC	POP	YRMAT	RSDIN
frst_mixed	1	**1**								
			frst	y	0	0	0	0	0	10000
pasture	1	**1**								
			past	n	0	0	0	0	0	3000
agriculture_land_gen	1	**1**								
			agrl	n	0	0	0	0	0	1000
urban_residential	1	**1**								
			berm	n	0	0	0	0	0	3000
corn_soybean	2	**1**								
			corn	n	0	0	0	0	0	2000
			soyb	n	0	0	0	0	0	2000
ryegrass	1	**1**								
			ryeg	y	1	500	0	0	0	2000
canary_grass	1	**1**								
			cana	y	1	500	0	0	0	2000

- **ROUT_UNIT.ELE –** HYP column deleted

rout_unit.ele					
NUMB	NAME	OBTYP	OBTYPNO	FRAC	DR
1	hru1	hru	1	0.5	0.00
2	hru2	hru	2	0.5	0.00

- **FILE.CIO –** ADDED SOILS_LTE.SOL to file.cio (partial file below):

SOILS	soils.sol	nutrients.sol	**soils_lte.sol**	
DECISION_TABLE	lum.dtl	res_rel.dtl	scen_lu.dtl	flo_con.dtl

- CAL_PARMS.CAL file – example input datasets updated with new file (LREW):
  1) Removed PST and PLT variables in this database file;
  2) The **GW** variables in OBJ_TYP changed to **AQU**
  3) "delay" variable (in AQU OBJ_TYP column) renamed to "bf_max"
     Range = 0-2
     Units = mm

- CAL_PARMS_CAL file (continued) – added following calibration variables to database file.

NAME	**OBJ_TYP**	**ABSMIN**	**ABSMAX**	**UNITS**
snofall_tmp	hru	-20	20	degrees
snomelt_tmp	hru	-20	20	degrees
snomelt_max	hru	0	20	mm/deg/c/day
snomelt_min	hru	0	20	mm/deg/c/day
snomelt_lag	hru	0	1	none

tile_dep	hru	0	6000	mm
tile_dtime	hru	0	100	hrs
tile_lag	hru	0	100	hrs

V. OTHER

Removed the following subroutines in the source codes:

- hmet_hru_init.f90
- path_hru.init.f90
- path_water_init.f90
- pest_hru_init.f90
- pest_water_init.f90
- constit_hyd_frac.f90
- constit_water_frac.f90
- constit_water_add.f90
- ch_read_pst.f90
- constit_hyd_add.f90
- res_read_pst.f90
- readlup.f90

Added new subroutines:

- PEST_HRU_AQU_READ.F90
- HMET_HRU_AQU_READ.F90
- PATH_CHA_RES_READ.F90
- SALT_CHA_RES_READ.F90
- SALT_HRU_AQU_READ.F90
- OUTPUT_LS_SALT_MODULE.F90
- CONSTIT_DB_READ.F90

Code edited for LINUX compile:

- Change all i_exist statements:

Old	**New**
i_exist /=0 .or.	i_exist .or.
if (i_exist == 0 .or.	if (.not. i_exist .or.

- Ambiguous functions: om_add and om_mult_const (in organic_minteral_mass_module.f90)
- Deleted RES_CONVERT_MASS.F90 (TWO ROUTINES INCLUDED)
- AQU_READ_ELEMENTS.F90 – initialize MREG = 0 at top of routine;

REVISION 57 – December 17, 2018

I. NEW_INPUT_FILES
Contains a list of new input files that are being tested.

II. NEW_OUTPUT_FILES
Contains a list of new output files being review.

III. Existing output files
List of changes in output files

IV. Existing input files
List of changes in input files

V. Other
Other files that were modified in this revision.

I. NEW INPUT FILES

Added new decision table file: flo_con.dtl

II. NEW OUTPUT FILES

New pesticide output files added. If the time series (day/month/year/aa for PEST in the PRINT.PRT file are set to 'y' the following pesticide files will be printed.

NOTE: these files are currently active, but have not been tested properly in this revision.

HRU_PESTICIDE:
hru_pest_day.txt
hru_pest_mon.txt
hru_pest_yr.txt
hru_pest_aa.txt

CHANNEL_PESTICIDE:
channel_pest_day.txt
channel_pest_mon.txt
channel_pest_yr.txt
channel_pest_aa.txt

RESERVOIR_PESTICIDE:
reservoir_pest_day.txt
reservoir_pest_mon.txt
reservoir_pest_yr.txt
reservoir_pest_aa.txt

BASIN_CHANNEL_PESTICIDE:
basin_ch_pest_day.txt
basin_ch_pest_mon.txt
basin_ch_pest_yr.txt
basin_ch_pest_aa.txt

BASIN_RESERVOIR_PESTICIDE:
basin_res_pest_day.txt
basin_res_pest_mon.txt
basin_res_pest_yr.txt
basin_res_pest_aa.txt

BASIN_LS_PESTICIDE:
basin_ls_pest_day.txt
basin_ls_pest_mon.txt
basin_ls_pest_yr.txt
basin_ls_pest_aa.txt

III. EXISTING OUTPUT FILES

IV. EXISTING INPUT FILES

1) recall_day.rec/recall_mon.rec/recall_ann.rec updated (2_stage dataset) to remove inputs in from previous revision:

   PSOL, PSOR, BACP, BACLP, MET1, MET2, MET3

2) FILE.CIO – added the new decision table name to COND section
   COND lum.dtl res_rel.dtl scen_lu.dtl **flo_con.dtl**

3) PRINT.PRT – added CS_PEST to file for constituents print (last line of print.prt)

4) AQUIFER.AQU – STOR column changed to DEP_BOT (10.0)
   HGT column changed to DEP_WT (5.0)

V. OTHER

- Added following subroutines:
  RLS_ROUTETILE.F90
  DTBL_FLOCON_READ.F90
  HRU_DTBL_ACTIONS.F90
  HRU_PESTICIDE_OUTPUT.F90
  CH_PESTICIDE_MODULE.F90
  CH_PESTICIDE_OUTPUT.F90
  RES_PEST_MODULE.F90
  RES_PEST_OUTPUT.F90
  BASIN_CH_PEST_OUTPUT.F90
  BASIN_RES_PEST_OUTPUT.F90
  BASIN_LS_PEST_OUTPUT.F90

0.

- Added: saturated_buffer input data files to the commit datasets
- Added: 2_stage_constituents input data files to the commit datasets
- Removed: 2_stage commit dataset
- Renamed the following subroutines:
  pst_apply.f90 – pest_apply.f90
  pst_decay.f90 – pest_decay.f90
  pst_enrsb.f90 – pest_enrsb.f90
  pst_lch – pest.lch.f90
  pst_pesty.f90 – pest_pesty.f90
  pst_soil_tot.f90 – pest_soil_tot.f90
  pst_washp.f90 – pest_washp.f90
  pestparm_read.f90 – pest_parm_read.f90

plantparm_read.f90 – plant_parm_read.f90
tillparm_read.f90 – till_parm_read.f90
fertparm_read.f90 – fert_parm_read.f90
urbanparm_read.f90 – urban_parm_read.f90
pathparm_read.f90 – path_parm_read.f90
septicparm_read.f90 – septic_parm_read.f90

REVISION 56 – November 6, 2018

I. NEW_INPUT_FILES
Contains a list of new input files that are being tested.

II. NEW_OUTPUT_FILES
Contains a list of new output files being review.

III. Existing output files
List of changes in output files

IV. Existing input files
List of changes in input files

V. Other
Other files that were modified in this revision.

I. NEW INPUT FILES

2 new files added to FILE.CIO – CHANNEL Section

- hyd-sed-lte.cha (formerly channel_lte.cha)

- temperature.cha (NAME column in 'temperature.cha' cross walked with CH_TEMP in 'channel-lte.cha')

temperature.cha:					
NAME	SNO_MLT	GW	SUR_LAT	BULK_CO	AIR_LAG
CHA1	1.00	0.97	1.00	0.0025	6.00

FILE.CIO – "INIT" Section added following files:

soil_plant.ini
om_water.ini
pest_hru.ini
pest_water.ini
path_hru.ini (formerly path_soil.ini)
path_water.ini
hmet_hru.ini
hmet_water.ini
salt_hru.ini
salt_water.ini

- **soil_plant.ini** - name column crossed walked in HRU-DATA.HRU (soil_plant_init column):
  SW_FRAC – taken from PARAMETERS.BSN file, FFCB column
  NUTRIENT – name from NUTRIENTS.SOL file;
  PESTICIDES – name from PEST_HRU.INI file
  PATHOGENS – name from PATH_HRU.INI file
  HEAVY METALS – name from HMET_HRU.INI
  SALTS – name from SALT_HRU.INI

soil_plant.ini						
NAME	SW_FRAC	NUTRIENTS	PESTICIDES	PATHOGENS	HEAVY_METALS	SALTS
no_init	0.2	in25	no_ini_pst	no_ini_path	null	null
low_init	0.7	in25	low_ini_pst	low_ini_path	null	null

- **pest_hru.ini** – NAME cross walked from PESTICIDES column in SOIL_PLANT.INI file

pest_hru.ini:			
NAME		PLANT	SOIL
low_ini_pst			
	aatrex	0.1	0.6
	banvel	0.05	0.5
	prowl	0	0.4
	roundup	0.01	0.7
NAME		PLANT	SOIL
no_ini_pst			
	aatrex	0	0
	banvel	0	0
	prowl	0	0
	roundup	0	0

- **path_hru.ini** – cross walked from PATHOGENS column in SOIL_PLANT.INI file;

path_hru.ini:			
NAME		PLANT	SOIL
low_ini_path			
	fecal_coliform	0.1	0.6
	e_coli	0.05	0.5
NAME		PLANT	SOIL
low_ini_path			
	fecal_coliform	0	0
	e_coli	0	0

- **hmet_hru.ini** – cross walked from HEAVY_METALS column in SOIL_PLANT.INI file (not currently active)
- **salt_hru.ini** – cross walked from SALTS column in SOIL_PLANT.INI file; (not currently active

- **om_water.ini** – name column – cross walked in initial.res/initial.cha ORG-MIN column;

om_water.ini																				
	flo	sed	orgn	sedp	no3	solp	chla	nh3	no2	cbod	dox	san	sil	cla	sag	lag	grv	temp	C
om_low_init	0.8	1000	90	80	70	60	30	20	10	9	8	2	1	1000	90	80	70	60	50
om_high_init	0.9	1100	99	88	77	66	33	22	11	19	28	82	91	1900	98	87	76	65	54

- **pest_water.ini** - name column cross walked with initial.cha/initial.res, PESTICIDES column

pest_water.ini:						
NAME	Water	SOL	SOR	BENTHIC	SOL	SOR
low_ini_wat_pst						
	aatrex	0.1	0.6		0.001	0.8
	banvel	0.05	0.5		0.002	0.81
	prowl	0	0.4		0.003	0.82
	roundup	0.01	0.7		0.004	0.83
NAME	Water	SOL	SOR	BENTHIC	SOL	SOR
no_ini_wat_pst						
	aatrex	0	0		0	0
	banvel	0	0		0	0
	prowl	0	0		0	0
	roundup	0	0		0	0

- **path_water.ini** – name column cross walked with initial.cha/initial.res, PATHOGENS column

path_water.ini							
NAME		Water	SOL	SOR	Benthic	SOL	SOR
low_ini_wat_path							
	fecal_coliform		0.1	0.6		0.001	0.4
	e_coli		0.05	0.5		0.002	0.7
NAME		Water	SOL	SOR	Benthic	SOL	SOR
no_ini_wat_path							
	fecal_coliform		0	0		0	0
	e_coli		0	0		0	0

- hmet_water.ini (not currently active)
- salt_water.ini (not currently active)

- Split the decision table file into three new files (d_table.dtl no longer exists)
  lum.dtl (landuse management table)
  res_rel.dtl (reservoir/release table)
  scen_lu.dtl (scenario/landuse table)

II. NEW OUTPUT FILES

hru_pathogen_output – HRU_PATH_*.TXT
hru_pesticide_output – HRU_PEST_*.TXT

III. EXISTING OUTPUT FILES

- All of the output files were renamed in this revision. The output filenames should match with the objects in the print.prt file. A list of the new names are listed in this document under RENAME OUTPUT.

- Removed bactp and bactlp from the following output files:

  - hru_ls_day.txt (formerly named 'losses_day_hru.txt')
  - hru_ls_mon.txt (formerly named 'losses_mon_hru.txt')
  - hru_ls_yr.txt (formerly named 'losses_yr_hru.txt')
  - hru_ls_aa.txt (formerly named 'losses_aa_hru.txt)

- Removed: PSOL, PSOR, BACP, BACLP, MET1, MET2, MET3 from the following output files:
  - basin_res_*.txt (formerly 'reservoir_*_bsn.txt')

  removed: bres_d → added: bres_in_d, bres_out_d
  bres_m → added: bres_in_m, bres_out_m
  bres_y → added: bres_in_y, bres_out_y
  bres_a → added: bres_in_a, bres_out_a

  - reservoir_*.txt (name not changed)

  removed: res_d → added: res_in_d, res_out_d
  res_m → added: res_in_m, res_out_m
  res_y → added: res_in_y, res_out_y
  res_a → added: res_in_a, res_out_a

  - wetland_*.txt (name not changed)

  removed: wet_d → added: wet_in_d, wet_out_d
  wet_m → added: wet_in_m, wet_out_m
  wet_y → added: wet_in_y, wet_out_y
  wet_a → added: wet_in_a, wet_out_a

  - hydin_*.txt (name not changed)
  - hydout_*.txt (name not changed)
  - deposition_*.txt (name not changed)
  - basin_psc_*.txt (formerly 'pts_day_bsn.txt') (recall)

IV. EXISTING INPUT FILES

CAL_PARMS.UPD (database file updated – not user supplied)
- Replaced DEPIMP with PERCO
- Deleted CNCOEF and SMXCO

PLANTS.PLT
- added Juniper plant (updated all datasets)
- added variable curyr_gro to database

HYDROLOGY.HYD – MOVE PERCO column to REPLACE the DEP_IMP column

PARAMETERS.BSN – The following columns are no longer being used and are open for future development:

CN_COEF – in the type, called openvar1
SMXCO - '' openvar2
R2ADJ - " openvar3

- **FERTILIZER.FRT** -
  - Removed columns BACTPB, BACTLPDB and BACTKDDB; A added 'Pathogens' column (character, currently all set == 'null')
  - Previous fertilizer files were off by a line; this file corrected and all values should be correct. All committed datasets files were updated.
  -

fertilizer.frt							
FERTNM	FMINN	FMINP	FORGN	FORGP	FNH3N	Pathogens	Description
elem_n	1	0	0	0	0	null	ElementalNitrogen
elem_p	0	1	0	0	0	null	ElementalPhosphorous
anh_nh3	0.82	0	0	0	1	null	AnhydrousAmmonia
urea	0.46	0	0	0	1	null	Urea
46_00_00	0.46	0	0	0	0	null	46_00_00

- **AQUIFER.AQU** – Header 'REVAP' changed to 'REVAP_CO'

- **LS_UNIT.DEF** – Check line #2 to ensure it includes total number

ls_unit.def
1 ←

SUB_NUMB	SUB_NAME	SUB_AREA	ELEM_TOT	ELEM1	ELEM2
1	lcu1	493.38	1	1	2

- **FILE.CIO –** DECISION_TABLE section updated with three new files;
  DECISION_TABLE lum.dtl res_rel.dtl scen_lu_dtl

- **PESTICIDE.CHA**
  SEDPST_CONC/SPST_CONC is now PST_SOLUB (pesticide solubility)

- **CHANNEL-LTE.CHA FILE** – format change and cross walk files;

channel-lte.cha									
CHA_NAME	CHA_INI	CHA_HYD	CHA_SED	CHA_NUT	CHA_PST	CHA_PATH	CHA_HMET	CHA_SALT	CH_TEMP
cha1	high_init	First_Ord1	null	midwest_1stord	organochlorines	e_coli	null	null	null
cha2	low_init	Gully_hru2	null	midwest_1stord	epsp_inhibitors	fecal_coliform	null	null	null

Where: CHA_INI → initial.cha
CHA_HYD → hyd-sed-lte.cha
CHA_SED → sediment.cha (not currently used)
CHA_NUT → nutrients.cha
CHA_PST → pesticide.cha
CHA_PATH → pathogens.cha
CHA_HMET → metals.cha
CHA_SALT → salt.cha

CHA_TEMP → temperature.cha

- **INITIAL.CHA FILE** – format change and crosswalk files;

initial.cha					
NAME	ORG-MIN	PESTICIDES	PATHOGENS	HEAVY_METALS	SALTS
low_init	low_init	no_ini	no_ini	null	null
high_init	high_init	low_ini	low_ini	null	null

Where: ORG-MIN → om_water.ini
PESTICIDES → pest_water.ini
PATHOGENS → path_water.ini
HEAVY_METALS → hmet_water.ini
SALTS → salt_water.ini

- **INITIAL.RES FILE** – format of file changed and crosswalk files:
  Note: Initial.res file must have ORG-MIN filename

initial.res					
NAME	ORG-MIN	PESTICIDES	PATHOGENS	HEAVY_METALS	SALTS
low_init	low_init	no_ini	no_ini	null	null
high_init	high_init	low_ini	low_ini	null	null

Where: ORG-MIN → om_water.ini
PESTICIDES → pest_water.ini
PATHOGENS → path_water.ini
HEAVY_METALS → hmet_water.ini
SALTS → salt_water.ini

- **HRU-DATA.HRU** – change header "**soil_nutr_init**" to "**soil_plant_init**"

- **PST_CONC** and **SPST_CONC** have been removed from calibration parameters.

- **EXCO_OM.EXC** – The following columns/inputs removed from this file:

  PSOL, PSOR
  BACP, BACLP, MET1, MET2, MET3

These inputs are now being read from: **EXCO_PEST.EXC** (see new input files section).

- **DR_OM.DEL** – The following columns/inputs removed from this file:

  PSOL, PSOR
  BACP, BACLP, MET1, MET2, MET3

These inputs are now being read from: **DR_PEST.DEL** (see new input files section).

- **RECALL_DAY.REC FILE** – The following columns/inputs removed from the **recall_day.rec**, **recall_ann.rec** and **recall_month.**rec files)

  PSOL, PSOR

BACP, BACLP, MET1, MET2, MET3

V. OTHER

- Added new subroutines:
  - CH_PESTICIDE_OUTPUT.F90
  - CH_PESTICIDE_MODULE.F90
  - CH_PATHOGEN_OUTPUT.F90
  - CH_PATHOGEN_MODULE.F9
  - CHANNEL_OM_OUTPUT.F90
  - CH_READ_TEMP.F90
  - CH_RTPATH.F90
  - CH_WATQUAL4.F90
  - CONSTIT_WATER_FRAC.F90
  - CONSTIT_WATER_ADD.F90
  - DTBL_SCEN_READ.F90
  - DTBL_LUM_READ.F90
  - DTBL_RES_READ.F90
  - HEADER_PATH.F90
  - HEADER_PEST.F90
  - HRU_PESTICIDE_OUTPUT.F90
  - HRU_PATHOGEN_OUTPUT.F90
  - HYD_CONVERT_MASS_TO_CONC.f90 (included in hydrograph_module.f90)
  - HYD_CONVERT_CONC_TO_MASS.f90 (included in hydrograph_module.f90)
  - PATHOGEN_INIT.F90
  - OM_WATER_INIT.F90
  - PEST_WATER_INIT.F90
  - PATH_WATER_INIT.F90
  - OUTPUT_LS_PATHOGEN_MODULE.F90
  - OUTPUT_LS_PESTICIDE_MODULE.F90
  - SD_HYDSED_READ.F90
  - SD_HYDSED_INIT.F90
  - PATHPARM_READ.F90
  - PATH_LS_SWROUTING.F90
  - PATH_LS_PROCESS.F90
  - PATH_LS_RUNOFF.F90
  - PATHOGEN_DATA_MODULE.F90
  - PATH_APPLY.F90
  - SOIL_PLANT_INIT.F90
  - HMET_HRU_INIT.F90
  - PATH_HRU_INIT.F90
  - SALT_HRU_INIT.F90
  - PEST_HRU_INIT.F90
  - PST_APPLY.F90
  - RES_CONVERT_MASS.F90

- Deleted subroutines:
  - CH_RTBACT.F90
  - CH_RTHPEST.F90
  - BAC_READ_LSPARMS.F90

BACTERIA_INIT.F90
HRU_SOIL_ASSIGN.F90
MGT_TILLMIX.F90
HMET_SOIL_INIT.F90
PATH_SOIL_INIT.F90
PEST_SOIL_INIT.F90
SALT_SOIL_INIT.F90
CH_RTHMUSK.F90

- **The following calibration subroutines were renamed:**

Rev 56 - Calibration rename	
CALIBRATION ROUTINES	
OLD NAME	**NEW NAME**
cal_read_parms.f90	cal_parm_read.f90
chg_par.f90	cal_parm_chg.f90
current_par_val.f90	cal_parm_select.f90
update_init.f90	cal_conditions.f90
update_read_cond.f90	cal_cond_read.f90
update_read_parm.f90	cal_parmchg_read.f90
SOFT CALIBRATION ROUTINES	
OLD NAME	**NEW NAME**
cal_ave_output.f90	calsoft_ave_output.f90
cal_chsed.f90	calsoft_chsed.f90
cal_control.f90	calsoft_control.f90
cal_hyd.f90	calsoft_hyd.f90
cal_init.f90	calsoft_init.f90
cal_plant.f90	calsoft_plant.f90
cal_sed.f90	calsoft_sed.f90
cal_sum_output.f90	calsoft_sum_output.f90
calt_hyd.f90	caltsoft_hyd.f90
codes_read_cal.f90	calsoft_read_codes.f90

- **The following output files were renamed:**

old output name	NEW OUTPUT FILENAME		old CSV filename	NEW CVS FILE NAME
waterbal_day_bsn.txt	basin_wb_day.txt		waterbal_day_bsn.csv	basin_wb_day.csv
waterbal_mon_bsn.txt	basin_wb_mon.txt		waterbal_mon_bsn.csv	basin_wb_mon.csv
waterbal_yr_bsn.txt	basin_wb_yr.txt		waterbal_yr_bsn.csv	basin_wb_yr.csv
waterbal_aa_bsn.txt	basin_wb_aa.txt		waterbal_aa_bsn.csv	basin_wb_aa.csv
nutbal_day_bsn.txt	basin_nb_day.txt		nutbal_day_bsn.csv	basin_nb_day.csv
nutbal_mon_bsn.txt	basin_nb_mon.txt		nutbal_mon_bsn.csv	basin_nb_mon.csv
nutbal_yr_bsn.txt	basin_nb_yr.txt		nutbal_yr_bsn.csv	basin_nb_yr.csv
nutbal_aa_bsn.txt	basin_nb_aa.txt		nutbal_aa_bsn.csv	basin_nb_aa.csv
losses_day_bsn.txt	basin_ls_day.txt		losses_day_bsn.csv	basin_ls_day.csv
losses_mon_bsn.txt	basin_ls_mon.txt		losses_mon_bsn.csv	basin_ls_mon.csv
losses_yr_bsn.txt	basin_ls_yr.txt		losses_yr_bsn.csv	basin_ls_yr.csv
losses_aa_bsn.txt	basin_ls_aa.txt		losses_aa_bsn.csv	basin_ls_aa.csv
plantwx_day_bsn.txt	basin_pw_day.txt		plantwx_day_bsn.csv	basin_pw_day.csv
plantwx_mon_bsn.txt	basin_pw_mon.txt		plantwx_mon_bsn.csv	basin_pw_mon.csv
plantwx_yr_bsn.txt	basin_pw_yr.txt		plantwx_yr_bsn.csv	basin_pw_yr.csv
plantwx_aa_bsn.txt	basin_pw_aa.txt		plantwx_aa_bsn.csv	basin_pw_aa.csv
aquifer_day_bsn.txt	basin_aqu_day.txt		aquifer_day_bsn.csv	basin_aqu_day.csv
aquifer_mon_bsn.txt	basin_aqu_mon.txt		aquifer_mon_bsn.csv	basin_aqu_mon.csv
aquifer_yr_bsn.txt	basin_aqu_yr.txt		aquifer_yr_bsn.csv	basin_aqu_yr.csv
aquifer_aa_bsn.txt	basin_aqu_aa.txt		aquifer_aa_bsn.csv	basin_aqu_aa.csv
reservoir_day_bsn.txt	basin_res_day.txt		reservoir_day_bsn.csv	basin_res_day.csv
reservoir_mon_bsn.txt	basin_res_mon.txt		reservoir_mon_bsn.csv	basin_res_mon.csv
reservoir_yr_bsn.txt	basin_res_yr.txt		reservoir_yr_bsn.csv	basin_res_yr.csv
reservoir_aa_bsn.txt	basin_res_aa.txt		reservoir_aa_bsn.csv	basin_res_aa.csv
channel_day_bsn.txt	basin_cha_day.txt		channel_day_bsn.csv	basin_cha_day.csv
channel_mon_bsn.txt	basin_cha_mon.txt		channel_mon_bsn.csv	basin_cha_mon.csv
channel_yr_bsn.txt	basin_cha_yr.txt		channel_yr_bsn.csv	basin_cha_yr.csv
channel_aa_bsn.txt	basin_cha_aa.txt		channel_aa_bsn.csv	basin_cha_aa.csv
channel_day_sd_bsn.txt	basin_sd_cha_day.txt		channel_day_sd_bsn.csv	basin_sd_cha_day.csv

channel_mon_sd_bsn.txt	basin_sd_cha_mon.txt		channel_mon_sd_bsn.csv	basin_sd_cha_mon.csv
channel_yr_sd_bsn.txt	basin_sd_cha_yr.txt		channel_yr_sd_bsn.csv	basin_sd_cha_yr.csv
channel_aa_sd_bsn.txt	basin_sd_cha_aa.txt		channel_aa_sd_bsn.csv	basin_sd_cha_aa.csv
pts_day_bsn.txt	basin_psc_day.txt		pts_day_bsn.csv	basin_psc_day.csv
pts_mon_bsn.txt	basin_psc_mon.txt		pts_mon_bsn.csv	basin_psc_mon.csv
pts_yr_bsn.txt	basin_psc_yr.txt		pts_yr_bsn.csv	basin_psc_yr.csv
pts_aa_bsn.txt	basin_psc_aa.txt		pts_aa_bsn.csv	basin_psc_aa.csv
waterbal_day_lsu.txt	lsunit_wb_day.txt		waterbal_day_lsu.csv	lsunit_wb_day.csv
waterbal_mon_lsu.txt	lsunit_wb_mon.txt		waterbal_mon_lsu.csv	lsunit_wb_mon.csv
waterbal_yr_lsu.txt	lsunit_wb_yr.txt		waterbal_yr_lsu.csv	lsunit_wb_yr.csv
waterbal_aa_lsu.txt	lsunit_wb_aa.txt		waterbal_aa_lsu.csv	lsunit_wb_aa.csv
nutbal_day_lsu.txt	lsunit_nb_day.txt		nutbal_day_lsu.csv	lsunit_nb_day.csv
nutbal_mon_lsu.txt	lsunit_nb_mon.txt		nutbal_mon_lsu.csv	lsunit_nb_mon.csv
nutbal_yr_lsu.txt	lsunit_nb_yr.txt		nutbal_yr_lsu.csv	lsunit_nb_yr.csv
nutbal_aa_lsu.txt	lsunit_nb_aa.txt		nutbal_aa_lsu.csv	lsunit_nb_aa.csv
losses_day_lsu.txt	lsunit_ls_day.txt		losses_day_lsu.csv	lsunit_ls_day.csv
losses_mon_lsu.txt	lsunit_ls_mon.txt		losses_mon_lsu.csv	lsunit_ls_mon.csv
losses_yr_lsu.txt	lsunit_ls_yr.txt		losses_yr_lsu.csv	lsunit_ls_yr.csv
losses_aa_lsu.txt	lsunit_ls_aa.txt		losses_aa_lsu.csv	lsunit_ls_aa.csv
plantwx_day_lsu.txt	lsunit_pw_day.txt		plantwx_day_lsu.csv	lsunit_pw_day.csv
plantwx_mon_lsu.txt	lsunit_pw_mon.txt		plantwx_mon_lsu.csv	lsunit_pw_mon.csv
plantwx_yr_lsu.txt	lsunit_pw_yr.txt		plantwx_yr_lsu.csv	lsunit_pw_yr.csv
plantwx_aa_lsu.txt	lsunit_pw_aa.txt		plantwx_aa_lsu.csv	lsunit_pw_aa.csv
waterbal_day_sd.txt	hru-lte_wb_day.txt		waterbal_day_sd.csv	hru-lte_wb_day.csv
waterbal_mon_sd.txt	hru-lte_wb_mon.txt		waterbal_mon_sd.csv	hru-lte_wb_mon.csv
waterbal_yr_sd.txt	hru-lte_wb_yr.txt		waterbal_yr_sd.csv	hru-lte_wb_yr.csv
waterbal_aa_sd.txt	hru-lte_wb_aa.txt		waterbal_aa_sd.csv	hru-lte_wb_aa.csv
nutbal_day_sd.txt	no nutrients hru-lte		nutbal_day_sd.csv	no nutrients hru-lte
nutbal_mon_sd.txt	no nutrients hru-lte		nutbal_mon_sd.csv	no nutrients hru-lte
nutbal_yr_sd.txt	no nutrients hru-lte		nutbal_yr_sd.csv	no nutrients hru-lte
nutbal_aa_sd.txt	no nutrients hru-lte		nutbal_aa_sd.csv	no nutrients hru-lte
losses_day_sd.txt	hru-lte_ls_day.txt		losses_day_sd.csv	hru-lte_ls_day.csv
losses_mon_sd.txt	hru-lte_ls_mon.txt		losses_mon_sd.csv	hru-lte_ls_mon.csv
losses_yr_sd.txt	hru-lte_ls_yr.txt		losses_yr_sd.csv	hru-lte_ls_yr.csv

losses_aa_sd.txt	hru-lte_ls_aa.txt		losses_aa_sd.csv	hru-lte_ls_aa.csv
plantwx_day_sd.txt	hru-lte_pw_day.txt		plantwx_day_sd.csv	hru-lte_pw_day.csv
plantwx_mon_sd.txt	hru-lte_pw_mon.txt		plantwx_mon_sd.csv	hru-lte_pw_mon.csv
plantwx_yr_sd.txt	hru-lte_pw_yr.txt		plantwx_yr_sd.csv	hru-lte_pw_yr.csv
plantwx_aa_sd.txt	hru-lte_pw_aa.txt		plantwx_aa_sd.csv	hru-lte_pw_aa.csv
channel_day.txt	channel_day.txt		channel_day.csv	channel_day.csv
channel_mon.txt	channel_mon.txt		channel_mon.csv	channel_mon.csv
channel_yr.txt	channel_yr.txt		channel_yr.csv	channel_yr.csv
channel_aa.txt	channel_aa.txt		channel_aa.csv	channel_aa.csv
channel_day_sd.txt	channel_sd_day.txt		channel_day_sd.csv	channel_sd_day.csv
channel_mon_sd.txt	channel_sd_mon.txt		channel_mon_sd.csv	channel_sd_mon.csv
channel_yr_sd.txt	channel_sd_yr.txt		channel_yr_sd.csv	channel_sd_yr.csv
channel_aa_sd.txt	channel_sd_aa.txt		channel_aa_sd.csv	channel_sd_aa.csv
output filename	same name		CSV filename	same name
aquifer_day.txt	aquifer_day.txt		aquifer_day.csv	aquifer_day.csv
aquifer_mon.txt	aquifer_mon.txt		aquifer_mon.csv	aquifer_mon.csv
aquifer_yr.txt	aquifer_yr.txt		aquifer_yr.csv	aquifer_yr.csv
aquifer_aa.txt	aquifer_aa.txt		aquifer_aa.csv	aquifer_aa.csv
output filename	same name		CSV filename	same name
reservoir_day.txt	reservoir_day.txt		reservoir_day.csv	reservoir_day.csv
reservoir_mon.txt	reservoir_mon.txt		reservoir_mon.csv	reservoir_mon.csv
reservoir_yr.txt	reservoir_yr.txt		reservoir_yr.csv	reservoir_yr.csv
reservoir_aa.txt	reservoir_aa.txt		reservoir_aa.csv	reservoir_aa.csv
output filename	same name		CSV filename	same name
wetland_day.txt	wetland_day.txt		wetland_day.csv	wetland_day.csv
wetland_mon.txt	wetland_mon.txt		wetland_mon.csv	wetland_mon.csv
wetland_yr.txt	wetland_yr.txt		wetland_yr.csv	wetland_yr.csv
wetland_aa.txt	wetland_aa.txt		wetland_aa.csv	wetland_aa.csv
output filename	same name		CSV filename	same name
hydin_day.txt	hydin_day.txt		hydin_day.csv	hydin_day.csv
hydin_mon.txt	hydin_mon.txt		hydin_mon.csv	hydin_mon.csv
hydin_yr.txt	hydin_yr.txt		hydin_yr.csv	hydin_yr.csv
hydin_aa.txt	hydin_aa.txt		hydin_aa.csv	hydin_aa.csv
output filename	same name		CSV filename	same name
hydout_day.txt	hydout_day.txt		hydout_day.csv	hydout_day.csv

hydout_mon.txt	hydout_mon.txt		hydout_mon.csv	hydout_mon.csv
hydout_yr.txt	hydout_yr.txt		hyd_yr_hyd.csv	hyd_yr_hyd.csv
hydout_aa.txt	hydout_aa.txt		hydout_aa.csv	hydout_aa.csv
output filename			CSV filename	
routing_units_day.txt	ru_day.txt		routing_units_day.csv	ru_day.csv
routing_units_mon.txt	ru_mon.txt		routing_units_mon.csv	ru_mon.csv
routing_units_yr.txt	ru_yr.txt		routing_units_yr.csv	ru_yr.csv
routing_units_aa.txt	ru_aa.txt		routing_units_aa.csv	ru_aa.csv
output filename	same name		CSV filename	
soil_nutcarb_out.txt	soil_nutcarb_out.txt		NO CSV FILE	
output filename	same name		CSV filename	
mgt_out.txt	mgt_out.txt		NO CSV FILE	
output filename	same name			
flow_duration_curve.out	flow_duration_curve.out			
pco%hyd== y	same name		CSV filename	same name
deposition_day.txt	deposition_day.txt		deposition_day.csv	deposition_day.csv
deposition_mon.txt	deposition_mon.txt		deposition_mon.csv	deposition_mon.csv
deposition_yr.txt	deposition_yr.txt		deposition_yr.csv	deposition_yr.csv
deposition_aa.txt	deposition_aa.txt		deposition_aa.csv	deposition_aa.csv
	same name		CSV filename	same name
channel_om_day.txt	channel_om_day.txt		channel_om_day.csv	channel_om_day.csv
channel_om_mon.txt	channel_om_mon.txt		channel_om_mon.csv	channel_om_mon.csv
channel_om_yr.txt	channel_om_yr.txt		channel_om_yr.csv	channel_om_yr.csv
channel_om_aa.txt	channel_om_aa.txt		channel_om_aa.csv	channel_om_aa.csv
	same name		CSV filename	same name
channel_path_day.txt	channel_path_day.txt		channel_path_day.csv	channel_path_day.csv
channel_path_mon.txt	channel_path_mon.txt		channel_path_mon.csv	channel_path_mon.csv
channel_path_yr.txt	channel_path_yr.txt		channel_path_yr.csv	channel_path_yr.csv
channel_path_aa.txt	channel_path_aa.txt		channel_path_aa.csv	channel_path_aa.csv
	same name		CSV filename	same name
hru_path_day.txt	hru_path_day.txt		hru_path_day.csv	hru_path_day.csv
hru_path_mon.txt	hru_path_mon.txt		hru_path_mon.csv	hru_path_mon.csv
hru_path_yr.txt	hru_path_yr.txt		hru_path_yr.csv	hru_path_yr.csv

hru_path_aa.txt	hru_path_aa.txt		hru_path_aa.csv	hru_path_aa.csv
	same name		CSV filename	same name
hru_pest_day.txt	hru_pest_day.txt		hru_pest_day.csv	hru_pest_day.csv
hru_pest_mon.txt	hru_pest_mon.txt		hru_pest_mon.csv	hru_pest_mon.csv
hru_pest_yr.txt	hru_pest_yr.txt		hru_pest_yr.csv	hru_pest_yr.csv
hru_pest_aa.txt	hru_pest_aa.txt		hru_pest_aa.csv	hru_pest_aa.csv

d:\modular_datasets_rev55_2\revision_notes\Rev55_2_docs

REVISION 55.2 – November 27, 2018

I. NEW_INPUT_FILES
Contains a list of new input files that are being tested.

II. NEW_OUTPUT_FILES
Contains a list of new output files being review.

III. Existing output files
List of changes in output files

IV. Existing input files
List of changes in input files

V. Other
Other files that were modified in this revision.

I. NEW INPUT FILES

II. NEW OUTPUT FILES

III. EXISTING OUTPUT FILES

IV. EXISTING INPUT FILES

V. OTHER

- Renamed pl_leaf_mortality routine to pl_mortality
- Computational changes in pl_leaf_drop and pl_grow subroutines
- Fixed issue with harvest for clover crop in mgt_harvestop subroutine
- Added 2_stage_constituents to the commit datasets;

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REVISION 55.1 – October 15, 2018

Note: This revision had some computational changes made.

- **Rounding problem (Chris George)**
- **Backspace statement in daily weather routines**

There were no input or output edits in this Revision 55.1.

I. NEW_INPUT_FILES
Contains a list of new input files that are being tested.

II. NEW_OUTPUT_FILES
Contains a list of new output files being review.

III. Existing output files
List of changes in output files

IV. Existing input files
List of changes in input files

V. Other
Other files that were modified in this revision.

I. NEW INPUT FILES

II. NEW OUTPUT FILES

III. EXISTING OUTPUT FILES

IV. EXISTING INPUT FILES

V. OTHER