```
# <?xml version="1.0" encoding="UTF-8" standalone="no" ?>
# <WPhast>
#   <!--Exported from
C:\strata-model-perimeter\final\strata-model-perimeter\phast\chem\nichols.p4w-->
#   <!--Exported to
C:\strata-model-perimeter\final\strata-model-perimeter\phast\chem\nichols.trans.dat-
->
# </WPhast>
#
SOLUTE_TRANSPORT true
        -diffusivity  1e-009
STEADY_FLOW false
FREE_SURFACE_BC false
SOLUTION_METHOD
        -iterative_solver   true
        -tolerance          1e-010
        -save_directions    20
        -maximum_iterations 500
        -space_differencing 0
        -time_differencing  1
        -cross_dispersion   false
        -rebalance_fraction 0.5
        -rebalance_by_cell  false
UNITS
        -time                               days
        -horizontal_grid                    ft
        -vertical_grid                      ft
        -map_horizontal                     ft
        -map_vertical                       ft
        -head                               ft
        -hydraulic_conductivity             ft/day
        -specific_storage                   1/foot
        -dispersivity                       ft
        -flux                               ft/day
        -leaky_hydraulic_conductivity       ft/day
        -leaky_thickness                    ft
        -well_diameter                      ft
        -well_flow_rate                     ft^3/day
        -well_depth                         ft
        -river_bed_hydraulic_conductivity ft/day
        -river_bed_thickness                ft
        -river_width                        ft
        -river_depth                        ft
        -drain_hydraulic_conductivity       ft/day
        -drain_thickness                    ft
        -drain_width                        ft
        -equilibrium_phases                 WATER
        -exchange                           WATER
        -surface                            WATER
        -solid_solutions                    WATER
        -kinetics                           WATER
        -gas_phase                          WATER
GRID
        -nonuniform X
                0    500    1000    1500    2000
                2500    3000    3500    4000    4500
                4930    5280    5560    5760    5900
                6000    6070    6140    6200    6250
                6290    6325    6350    6370    6390
                6410    6430    6450    6470    6490
                6510    6530    6550    6570    6590
                6610    6630    6650    6670    6690
                6710    6730    6745    6760    6775
```

```
                6790    6803    6816    6828    6839
                6849    6858    6866    6874    6881
                6888    6894    6900    6906    6912
                6918    6925    6932    6940    6948
                6957    6967    6978    6990    7003
                7016    7031    7046    7061    7076
                7096    7116    7136    7156    7176
                7196    7216    7236    7256    7276
                7296    7316    7336    7356    7376
                7396    7416    7436    7456    7481
                7516    7556    7606    7666    7736
                7806    7906    8046    8246    8526
                8876    9306    9806    10306    10806
                11306    11806    12306    12806    13306
                13806
        -nonuniform Y
                0    500    1000    1500    2000
                2500    3000    3500    4000    4500
                4930    5280    5560    5760    5900
                6000    6070    6140    6200    6250
                6290    6325    6350    6370    6390
                6410    6430    6450    6470    6490
                6510    6530    6550    6570    6590
                6610    6630    6650    6670    6690
                6710    6730    6745    6760    6775
                6790    6803    6816    6828    6839
                6849    6858    6866    6874    6881
                6888    6894    6900    6906    6912
                6918    6925    6932    6940    6948
                6957    6967    6978    6990    7003
                7016    7031    7046    7061    7076
                7096    7116    7136    7156    7176
                7196    7216    7236    7256    7276
                7296    7316    7336    7356    7376
                7396    7416    7436    7456    7481
                7516    7556    7606    7666    7736
                7806    7906    8046    8246    8526
                8876    9306    9806    10306    10806
                11306    11806    12306    12806    13306
                13806
        -uniform Z 0 20 2
        -snap X 0.001
        -snap Y 0.001
        -snap Z 0.001
        -chemistry_dimensions XYZ
        -print_orientation XY
        -grid_origin   0  0  0
        -grid_angle    0
MEDIA
        -domain
                -active                   1
                -Kx                       1
                -Ky                       1
                -Kz                       0.01
                -porosity                 0.05
                -specific_storage         0.0001
                -long_dispersivity        40
                -horizontal_dispersivity  4
                -vertical_dispersivity    4
                -tortuosity               1
SPECIFIED_HEAD_BC
        -box 13576.1852504616 -263.301819328248 0 14571.0718350148 14352.3513113107
20.000000638286 GRID
```

```
                -description CHD1
                -head
                        0 days  250
                        365 days        250
                        545 days        250
                -associated_solution
                        0 days  2
SPECIFIED_HEAD_BC
        -box -353.363067146361 -1086.71894223671 0 109.809051974239 14197.9612015051
20.000000638286 GRID
                -head
                        0 days  319
                        365 days        319
                        545 days        319
                -fixed_solution
                        0 days  2
HEAD_IC
        -domain
                -head                       XYZ GRID ss.head.ft.dat
CHEMISTRY_IC
        -domain
                -solution           2
WELL 1 inject1
        -xy_coordinate_system GRID
        -z_coordinate_system GRID
        -location 6903 6903
        -diameter 0.5
        -elevation 0 20
        -allocate_by_head_and_mobility False
        -injection_rate
                0 days     1980
                365 days     1980
        -solution
                0 days     1
                365 days     1
WELL 2 inject2
        -xy_coordinate_system GRID
        -z_coordinate_system GRID
        -location 6767.5 6903
        -diameter 1
        -elevation 0 20
        -allocate_by_head_and_mobility False
        -injection_rate
                0 days     1980
                365 days     1980
        -solution
                0 days     1
                365 days     1
WELL 3
        -xy_coordinate_system GRID
        -z_coordinate_system GRID
        -location 6767 6782.5
        -diameter 1
        -elevation 0 20
        -allocate_by_head_and_mobility False
        -injection_rate
                0 days     1980
                365 days     1980
        -solution
                0 days     1
                365 days     1
WELL 4
        -xy_coordinate_system GRID
```

```
        -z_coordinate_system GRID
        -location 6903 6782.5
        -diameter 1
        -elevation 0 20
        -allocate_by_head_and_mobility False
        -injection_rate
                0 days     1980
                365 days     1980
        -solution
                0 days     1
                365 days     1
WELL 5 production
        -xy_coordinate_system GRID
        -z_coordinate_system GRID
        -location 6833.5 6844
        -diameter 1
        -elevation 0 20
        -allocate_by_head_and_mobility False
        -pumping_rate
                0 days     8000
                365 days     0.01
PRINT_INITIAL
        -boundary_conditions        false
        -components                 false
        -conductances               false
        -echo_input                 true
        -fluid_properties           true
        -force_chemistry_print      false
        -HDF_chemistry              true
        -HDF_heads                  true
        -HDF_media                  true
        -HDF_steady_flow_velocities true
        -heads                      true
        -media_properties           false
        -solution_method            true
        -steady_flow_velocities     false
        -wells                      true
        -xyz_chemistry              false
        -xyz_components             false
        -xyz_heads                  false
        -xyz_steady_flow_velocities false
        -xyz_wells                  false
PRINT_FREQUENCY
        -save_final_heads true
        0
                -bc_flow_rates          0
                -boundary_conditions    false
                -components             0
                -conductances           0
                -end_of_period_default  true
                -flow_balance           end
                -force_chemistry_print  0
                -HDF_chemistry          1    step
                -HDF_heads              end
                -HDF_velocities         end
                -heads                  end
                -progress_statistics    end
                -restart_file           0
                -velocities             0
                -wells                  end
                -xyz_chemistry          2    step
                -xyz_components         0
                -xyz_heads              0
```

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                                nichols.trans.dat
                -xyz_velocities         0
                -xyz_wells              0
                -zone_flow              end
                -zone_flow_xyzt         end
                -zone_flow_tsv          end
                -hdf_intermediate       end
TIME_CONTROL
        -time_step
                0 36.5 days
        -time_change
                365 days
                730 days
        -start_time 0 days
```