Function ValidateSeamsAndHatches() As Boolean

' This function validates that the inlet location does not interfere with a hatch or tank seam

' If there's no interference, the value "True" is returned

' Otherwise, a messagebox let's the user know there was an error, and values will need to be re-entered

Dim blnValid As Boolean = True

If INLET\_LOC = "Top" Then

Dim dblFrontLoc, dblBackLoc As Double

' These two variables represent the two Z coordinates of the inlet pipe, including the front and back sides

dblFrontLoc = INLET\_OFF - INLET\_PIPE\_OD / 2

dblBackLoc = INLET\_OFF + INLET\_PIPE\_OD / 2

' This If statement does the math for the front hatch

' F\_HATCH\_OFF represents the offset value of the hatch from the front of the tank body (not including dish depths)

' SEAM\_CLEAR\_MIN represents the minimum clearance you want enforced to place inlets around seams

' 20 in represents how wide the actual hatch is; this will need to become a variable if more hatches are used in the future

If F\_HATCH Then

If (dblFrontLoc > F\_HATCH\_OFF - SEAM\_CLEAR\_MIN And dblFrontLoc < F\_HATCH\_OFF + 20 in + SEAM\_CLEAR\_MIN) Or \_

(dblBackLoc > F\_HATCH\_OFF - SEAM\_CLEAR\_MIN And dblBackLoc < F\_HATCH\_OFF + 20 in + SEAM\_CLEAR\_MIN) Then

MessageBox.Show("The tank inlet will need to be moved to avoid interference with the front hatch." & vbCrLf & \_

"Avoid an inlet offset between " & F\_HATCH\_OFF - INLET\_PIPE\_OD / 2 - SEAM\_CLEAR\_MIN & Chr(34) & " and " & \_

F\_HATCH\_OFF + 20 in + INLET\_PIPE\_OD / 2 + SEAM\_CLEAR\_MIN & Chr(34) & ".")

blnValid = False

' Show the main form before finishing the test and returning a value of False

iLogicForm.Show("Configure Tank")

End If

End If

' This If statement does the math for the rear hatch

' R\_HATCH\_OFF represents the offset value of the hatch from the rear of the tank body (not including dish depths)

' SEAM\_CLEAR\_MIN represents the minimum clearance you want enforced to place inlets around seams

' 20 in represents how wide the actual hatch is; this will need to become a variable if more hatches are used in the future

If R\_HATCH Then

If (dblFrontLoc > TANK\_L - R\_HATCH\_OFF - 20 in - SEAM\_CLEAR\_MIN And dblFrontLoc < TANK\_L - R\_HATCH\_OFF + SEAM\_CLEAR\_MIN) Or \_

(dblBackLoc > TANK\_L - R\_HATCH\_OFF - 20 in - SEAM\_CLEAR\_MIN And dblBackLoc < TANK\_L - R\_HATCH\_OFF + SEAM\_CLEAR\_MIN) Then

MessageBox.Show("The tank inlet will need to be moved to avoid interference with the rear hatch." & vbCrLf & \_

"Avoid an inlet offset between " & TANK\_L - R\_HATCH\_OFF - 20 in - INLET\_PIPE\_OD / 2 - SEAM\_CLEAR\_MIN & Chr(34) & " and " & \_

TANK\_L - R\_HATCH\_OFF + INLET\_PIPE\_OD / 2 + SEAM\_CLEAR\_MIN & Chr(34) & ".")

blnValid = False

' Show the main form before finishing the test and returning a value of False

iLogicForm.Show("Configure Tank")

End If

End If

' This If statement does the math for the seam clearance calculations

' TANK\_L represents the length of the tank (not including dish depths)

' SHELL\_Q\_1 and SHELL\_Q\_2 represent how many plates of width 1 and width 2 are required to create the tank body

' SHELL\_W\_1 and SHELL\_W\_2 represent the widths of the shell plates used to create the tank shell body

If TANK\_L > 72 in Then

Dim dblSeamLocation As Double

' The For statement will take us from one seam of the tank to the next, until we pass where the inlet is located

For seam = 1 To SHELL\_Q\_1 + SHELL\_Q\_2 - 1

If seam <= SHELL\_Q\_1 Then

dblSeamLocation = SHELL\_W\_1 \* seam

Else

dblSeamLocation = SHELL\_Q\_1 \* SHELL\_W\_1 + (seam - SHELL\_Q\_1) \* SHELL\_W\_2

End If

' This statement will show you how to create a compound If statement using "And" and "Or" operators

If (dblFrontLoc > dblSeamLocation - SEAM\_CLEAR\_MIN And dblFrontLoc < dblSeamLocation + SEAM\_CLEAR\_MIN) Or \_

(dblBackLoc > dblSeamLocation - SEAM\_CLEAR\_MIN And dblBackLoc < dblSeamLocation + SEAM\_CLEAR\_MIN) Or \_

(INLET\_OFF > dblSeamLocation - SEAM\_CLEAR\_MIN And INLET\_OFF < dblSeamLocation + SEAM\_CLEAR\_MIN) Then

MessageBox.Show("The tank inlet will need to be moved to avoid interference with one of the seams." & vbCrLf & \_

"Avoid an inlet offset between " & dblSeamLocation - INLET\_PIPE\_OD / 2 - SEAM\_CLEAR\_MIN & Chr(34) & " and " & \_

dblSeamLocation + INLET\_PIPE\_OD / 2 + SEAM\_CLEAR\_MIN & Chr(34) & ".")

blnValid = False

' Show the main form before finishing the test and returning a value of False

iLogicForm.Show("Configure Tank")

End If

Next

End If

End If

ValidateSeamsAndHatches = blnValid

End Function