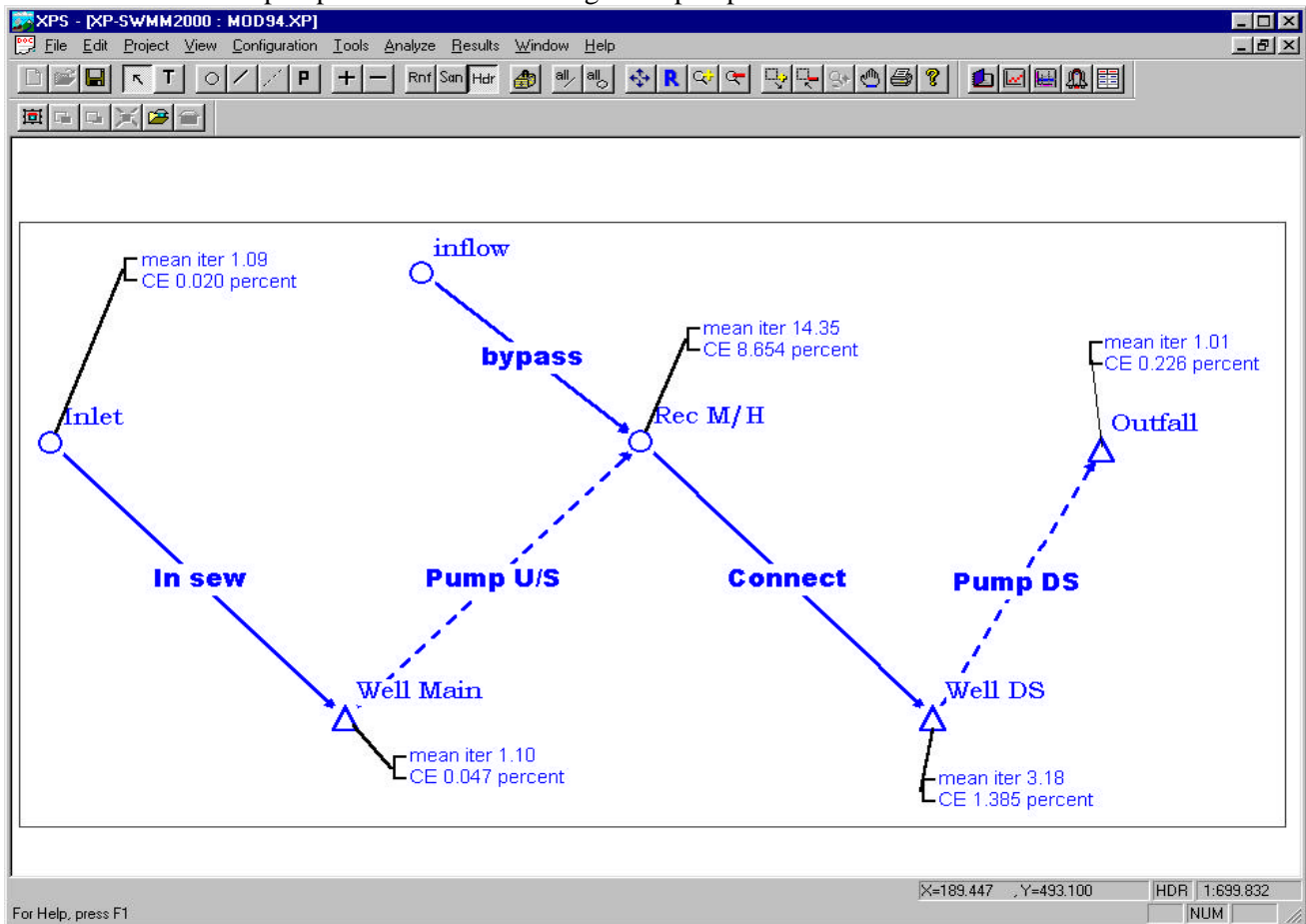


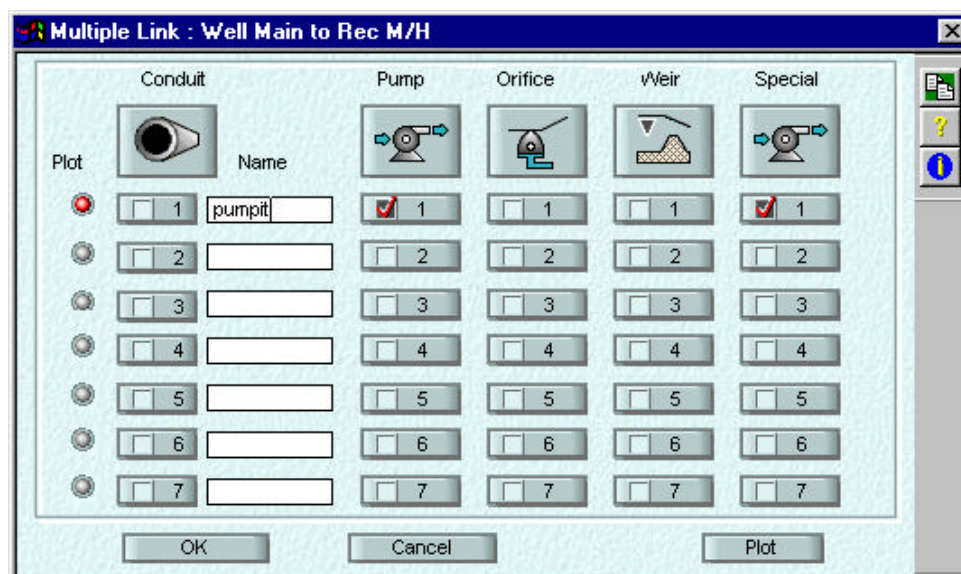
## Module 94: Real Time Control based on Flow

### Synopsis

Module 94 shows how to modify the pump flow of a conduit based on the flow in a non-adjacent conduit. In this model the pump “Pump US” is dependent not only on the downstream and upstream node water surface elevations but also a “pump rule” curve that changes the pump flow based on the conduit “Connect”.



A dynamic pump is entered in the pump dialogs of the multi-conduit link. The “pump rule” is entered in the special conduit list.



**Pump Data : Well Main to Rec M/H : pump 1**

Name:

Description:

Pump Rated By:

☒ Dynamic Head ☐ Static Head

Initial Depth:

Pump Starts:

Pump Stops:

☐ Well Volume

Total Volume:

Initial Volume:

☐ Depth in Node

Pump Type:

Pump Speed Factor:

OK Cancel

**Pump Ratings : PUMPIT**

Pump Flow Rate (m <sup>3</sup> /s)	Node Depth, Dynamic Head, Well Volume (m)
<input type="text" value=".399"/>	<input type="text" value="100."/>
<input type="text" value=".4"/>	<input type="text" value="6."/>
<input type="text" value=".401"/>	<input type="text" value=".1"/>
<input type="text" value=".402"/>	<input type="text" value=".01"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Current Row 2

OK Graph Cancel

The normal flow in this pump is 0.40 cms as shown to the right.

The “rule curve” for the pump rated by non-adjacent flow is shown on the next page and is entered in the Other table in the special conduit dialog. The “rule curve” is entered in column 2 and column 3 of the dialog. Factor #1 is always the name pumpbyQ; factor #2 is the name of the non-adjacent conduit; column #2 is the flow in the non-adjacent conduit; column #3 is the flow for the pump based on the flow in column #2. Please note that the program interpolates intermediate values.

**Special : Well Main to Rec M/H : Diversion 1**

Diversion Name:

☐ Hydraulic Brakes

☐ Regulator Link/Inflatable Weir

☐ Bendable Weir

☐ Special Pump (Pump 5)

☐ User Defined Weir

☐ Internal Rating Curve

☒ Other

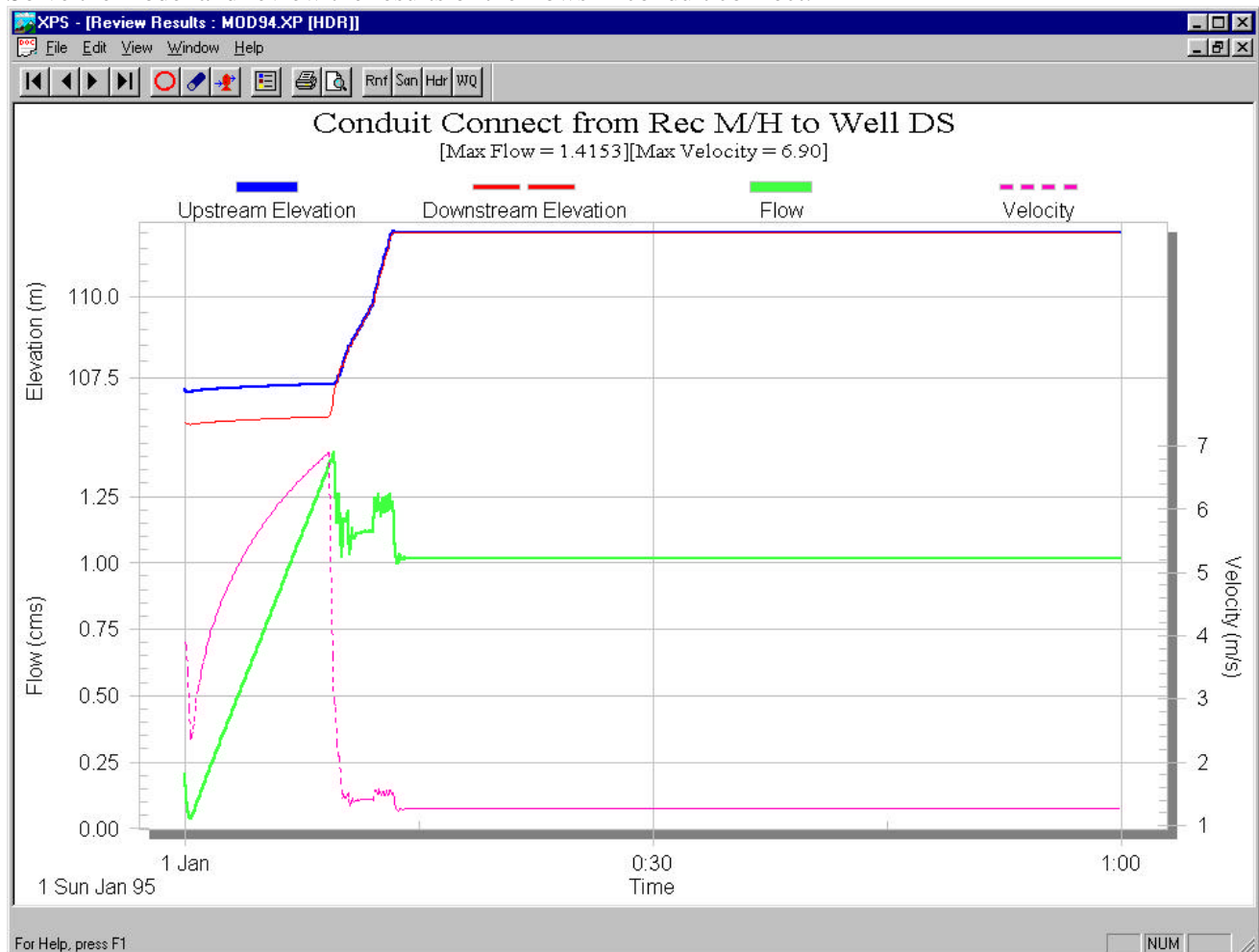
OK Cancel

**Special Diversion : Links Pump U/S**

Column #1	Column #2	Column #3	Column #4	
0.	0.	0.		
0.	1.	0.1		Factor #1
0.	2.	0.2		pumpbyQ
0.	4.	0.4		Factor #2
0.	5.	0.5		connect
				Factor #3
				Type Number
				5000

OK Cancel Sort Goto Graph Row 1

Solve the model and review the results of the flows in conduit connect.



Review the flows in the pump. These flows are 10 percent of the flows in conduit connect.

