It is claimed:

1. An apparatus for controlling flow of fluid comprising:

a flow ratio control system having at least a first passageway and a second passageway, wherein the ratio of fluid flow through the first passageway and second passageway is related to the characteristic of the fluid flow and wherein the ratio of flow between the two passageways will alter with changes in the characteristic of the fluid flow, and wherein the output of the flow ratio control system is utilized to control a pathway dependent resistance system.

2. An apparatus as in claim 1, wherein the characteristic is viscosity.

3. An apparatus as in claim 1, wherein the characteristic is fluid flow rate.

4. An apparatus as in claim 1, wherein the characteristic is density.

5. An apparatus as in claim 2, wherein the first passageway of the fluid ratio control system is more viscosity-dependent than the second passageway.

6. An apparatus as in claim 5 wherein the first passageway of the fluid ratio control system has a consistent diameter along its length.

7. An apparatus as in claim 6 wherein the first passageway of the flow ratio control system will provide more resistance to fluid flow as the fluid viscosity increases.

8. An apparatus as in claim 6 wherein the first passageway of the fluid ratio control system is longer than the second passageway of the fluid ratio control system.

9. An apparatus as in claim 5 wherein the first passageway provides a tortuous flow path.

10. An apparatus as in claim 5 wherein the first passageway has a textured interior surface.

11. An apparatus as in claim 5 wherein the first passageway is made of a swellable material, the passageway constricting when the material swells.

12. An apparatus as in claim 5 wherein the swellable material swells when contacted by the fluid when an undesired component is present in the fluid.

13. An apparatus as in claim 5 wherein the second passageway of the fluid ratio system will provide less resistance to fluid flow than the first passageway when the fluid viscosity is higher than a target viscosity.

14. An apparatus as in claim 5 wherein the increase in resistance to fluid flow in the second passageway in response to an increase in viscosity of the fluid is less than the increase in resistance to fluid flow in the first passageway.

15. An apparatus as in claim 5 wherein the second passageway of the fluid ratio system provides substantially constant resistance to fluid flow regardless of changes in fluid viscosity.

16. An apparatus as in claim 15 wherein the second passageway has a plurality of flow restrictors therein.

17. An apparatus as in claim 16 wherein the flow restrictors are orifice plates.

18. An apparatus as in claim 14 wherein the second passageway further comprises a vortex diode.

19. An apparatus as in claim 1, wherein the pathway dependent resistance system will impart a back-pressure on fluid flowing through the apparatus.

20. An apparatus as in claim 1 wherein the pathway dependent resistance system further comprises a vortex assembly.

21. An apparatus as in claim 20 wherein the vortex assembly comprises a first and second inlet, a vortex chamber and an outlet.

22. An apparatus as in claim 21 wherein the first inlet of the vortex assembly is in fluid communication with the first passageway of the flow ratio control system and wherein the second inlet of the vortex assembly is in fluid communication with the second passageway of the flow ratio control system.

23. An apparatus as in claim 21 wherein the vortex assembly further comprises at least a second outlet.

24. An apparatus as in claim 22 wherein the first inlet of the vortex assembly will direct fluid into the vortex chamber primarily tangentially.

25. An apparatus as in claim 22 wherein the second inlet of the vortex assembly will direct fluid into the vortex chamber primarily radially.

26. An apparatus as in claim 24 wherein the first inlet directs fluid into the vortex chamber at an angle substantially normal to a radial line extending from the vortex outlet.

27. An apparatus as in claim 25 wherein the second inlet directs fluid into the vortex chamber substantially in line with the vortex outlet.

28. An apparatus as in claim 20 wherein the vortex assembly comprises a vortex chamber, at least one outlet, and multiple inlets which direct fluid into the vortex chamber primarily tangentially.

29. An apparatus as in claim 28 wherein the vortex assembly further comprises multiple inlets which direct fluid into the vortex chamber primarily radially.

30. An apparatus as in claim 20 wherein the pathway dependent resistance system comprises at least two vortex assemblies connected in parallel.

31. An apparatus as in claim 30 wherein the pathway dependent resistance system comprises at least two vortex assemblies connected in series.

32. An apparatus as in claim 31 wherein the pathway dependent resistance system comprises a first and second vortex assemblies, each vortex assembly having a vortex chamber, a first and second inlets and an outlet, the first inlet of the second vortex assembly in fluid communication with the outlet of the first vortex assembly.

33. An apparatus as in claim 32 wherein the first inlet of the second vortex assembly directs fluid into the vortex chamber of the second vortex assembly primarily radially.

34. An apparatus as in claim 20 wherein the vortex assembly comprises a cylindrical vortex assembly.

35. An apparatus as in claim 1 further comprising a fluid amplifier system interposed between the fluid ratio system and the pathway dependent resistance system and in fluid communication with both.

36. An apparatus as in claim 35 wherein the fluid amplifier system comprises a proportional amplifier.

37. An apparatus as in claim 35 wherein the fluid amplifier system comprises a pressure-type amplifier.

38. An apparatus as in claim 35 wherein the fluid amplifier system comprises a jet-type amplifier.

39. An apparatus as in claim 35 wherein the fluid amplifier system comprises a bistable amplifier.

40. An apparatus as in claim 35 wherein the fluid ratio system further comprises a primary flow passageway, the primary flow passageway in fluid communication with the fluid amplifier system.

41. An apparatus as in claim 40 wherein the primary passageway further comprises a vortex diode.

42. An apparatus as in claim 40 wherein the primary passageway will accommodate more fluid flow than either the first or second passageways.

43. An apparatus as in claim 40 wherein the primary passageway will accommodate more flow than the first and second passageways combined.

44. An apparatus as in claim 40 wherein the first and second passageways of the flow ratio control system will direct flow from the primary passageway.

45. An apparatus as in claim 1 further comprising multiple fluid amplifier systems interposed between the fluid ratio system and the pathway dependent resistance system, the fluid amplifier systems arranged in series.

46. An apparatus as in claim 45 wherein the multiple fluid amplifier systems comprise at least one proportional amplifier and at least one bistable amplifier.

47. An apparatus as in claim 45 wherein the multiple fluid amplifier systems comprise at least one pressure-type amplifier and at least one bistable amplifier.

48. An apparatus as in claim 3, wherein the first passageway of the fluid ratio control system will provide less resistance than the second passageway to fluid flow as the flow rate increases.

49. An apparatus as in claim 3, wherein the second passageway of the fluid ratio control system will provide more resistance than the first passageway to fluid flow as the flow rate increases.

50. An apparatus as in claim 3, wherein the flow ratio control system comprises a bistable switch.

51. An apparatus as in claim 3, wherein the second passageway of the fluid ratio system will provide less resistance to fluid flow than the first passageway when the fluid flow rate is lower than a target flow rate.

52. An apparatus as in claim 3, wherein the second passageway of the fluid ratio system provides substantially constant resistance to fluid flow regardless of changes in fluid flow rate.

53. An apparatus as in claim 3, wherein the pathway dependent resistance system further comprises a vortex assembly having a first and second inlet, a vortex chamber and an outlet.

54. An apparatus as in claim 53, wherein the first inlet of the vortex assembly is in fluid communication with the first passageway of the flow ratio control system and wherein the second inlet of the vortex assembly is in fluid communication with the second passageway of the flow ratio control system.

55. An apparatus as in claim 54, wherein the first inlet of the vortex assembly will direct fluid into the vortex chamber primarily tangentially, and wherein the second inlet of the vortex assembly will direct fluid into the vortex chamber primarily radially.

56. An apparatus as in claim 3, further comprising a fluid amplifier system interposed between the fluid ratio system and the pathway dependent resistance system and in fluid communication with both.

57. An apparatus as in claim 56 wherein the fluid ratio system further comprises a primary flow passageway, the primary flow passageway in fluid communication with the fluid amplifier system.

58. An apparatus as in claim 4, wherein the first passageway of the fluid ratio control is more density dependent than the second passageway.

59. An apparatus as in claim 58, wherein the second passageway will provide substantially constant resistance to fluid flow as the density changes.

60. An apparatus as in claim 58, wherein the second passageway will provide less resistance to fluid flow as the flow rate increases.

61. An apparatus as in claim 4, wherein the second passageway of the fluid ratio system will provide less resistance to fluid flow than the first passageway when the fluid density is higher than a target density.

62. An apparatus as in claim 68, wherein the pathway dependent resistance system further comprises a vortex assembly having a first and second inlet, a vortex chamber and an outlet.

63. An apparatus as in claim 62, wherein the first inlet of the vortex assembly is in fluid communication with the first passageway of the flow ratio control system and wherein the second inlet of the vortex assembly is in fluid communication with the second passageway of the flow ratio control system.

64. An apparatus as in claim 63, wherein the first inlet of the vortex assembly will direct fluid into the vortex chamber primarily tangentially, and wherein the second inlet of the vortex assembly will direct fluid into the vortex chamber primarily radially.

65. An apparatus as in claim 58, further comprising a fluid amplifier system interposed between the fluid ratio system and the pathway dependent resistance system and in fluid communication with both.

66. An apparatus as in claim 65 wherein the fluid ratio system further comprises a primary flow passageway, the primary flow passageway in fluid communication with the fluid amplifier system.

67. An apparatus as in claim 1 wherein the apparatus is an oilfield tubular for positioning downhole in a wellbore extending through a subterranean formation.

68. An apparatus as in claim 67, wherein the flow control system is positioned in the wall of the oilfield tubular.

69. An apparatus as in claim 68, wherein the oilfield tubular has an interior passageway in fluid communication with the flow ratio control system.

70. An apparatus as in claim 69, wherein formation fluid will flow from the formation into the tubular interior passageway.

71. An apparatus as in claim 69, wherein the apparatus is for controlling production fluid flow and wherein the apparatus selects oil production over natural gas production.

72. An apparatus as in claim 69, wherein the apparatus is for controlling production fluid flow and wherein the apparatus selects natural gas production over water production.

73. An apparatus as in claim 69, wherein the apparatus is for controlling production fluid flow and wherein the apparatus selects oil production over water production.

74. An apparatus as in claim 71, wherein the apparatus will provide higher resistance to flow as the composition of the formation fluid changes to a higher percentage of natural gas.

75. An apparatus as in claim 5, wherein the flow control system is positioned in an oilfield tubular, and wherein the apparatus is for controlling production fluid flow, and

wherein the apparatus will increase resistance to fluid flow when the formation fluid reaches a target percentage composition of natural gas.

76. An apparatus as in claim 48, wherein the flow control system is positioned in an oilfield tubular, and wherein the apparatus is for controlling production fluid flow, and wherein the apparatus selects oil production over natural gas production.

77. An apparatus as in claim 58, wherein the flow control system is positioned in an oilfield tubular, and wherein the apparatus is for controlling production fluid flow, and wherein the apparatus selects oil production over natural gas production.

78. An apparatus as in claim 68, further comprising a plurality of flow ratio control systems and pathway dependent resistance systems.

79. An apparatus as in claim 48, wherein the flow control system is positioned in an oilfield tubular, and wherein the apparatus is for controlling production fluid flow, and wherein the apparatus will provide increased resistance to flow when flow rate is above a target flow rate.

80. An apparatus as in claim 67, the apparatus for injecting injection fluid from the oilfield tubular into the formation.

81. An apparatus as in claim 80, wherein the apparatus is for controlling injection of the injection fluid into the formation.

82. An apparatus as in claim 81, wherein the injection fluid is steam.

83. An apparatus as in claim 81, wherein the injection fluid is carbon dioxide.

84. An apparatus as in claim 82, wherein the apparatus selects injection of steam over injection of water.

85. An apparatus as in claim 84, wherein the apparatus will provide lower resistance to flow as the composition of the injection fluid changes to a higher percentage of steam.

86. An apparatus as in claim 5, wherein the apparatus is an oilfield tubular for positioning downhole in a wellbore extending through a subterranean formation, and

wherein the apparatus is for controlling injection fluid flow, and wherein the apparatus will decrease resistance to injection fluid flow when the injection fluid reaches a target percentage composition of steam.

87. An apparatus as in claim 48, wherein the apparatus is an oilfield tubular for positioning downhole in a wellbore extending through a subterranean formation, and wherein the apparatus is for controlling injection fluid flow, and wherein the apparatus will decrease resistance to injection fluid flow when the injection fluid falls below a target flow rate.

88. An apparatus as in claim 58, wherein the apparatus is an oilfield tubular for positioning downhole in a wellbore extending through a subterranean formation, and wherein the apparatus is for controlling injection fluid flow, and wherein the apparatus will decrease resistance to injection fluid flow when the density of the injection fluid falls below a target density.

89. An apparatus as in claim 67, wherein the apparatus is for controlling flow of cementing fluid from the exterior of the oilfield tubular to the interior of the oilfield tubular during reverse cementing.

90. An apparatus as in claim 89, wherein the apparatus will provide higher resistance to flow of cementing fluid as the composition of the cementing fluid changes to a higher viscosity.

91. An apparatus as in claim 89, wherein the apparatus will provide higher resistance to flow of cementing fluid as the composition of the cementing fluid changes to a higher density.

92. An apparatus as in claim 89, wherein the apparatus will provide higher resistance to flow of cementing fluid as the composition of the cementing fluid changes to a higher flow rate.

93. An apparatus as in claim 89, further comprising a movable plug mounted in an interior passageway of the oilfield tubular and operable to restrict fluid flow into the interior passageway.

94. An apparatus as in claim 97, wherein the flow ratio control system and pathway dependent resistance system are positioned within the movable plug.

95. An apparatus as in claim 71, further comprising a screen assembly for sand control.

96. An apparatus as in claim 71, further comprising an inflow control device in fluid communication with the flow ratio control system.

97. An apparatus as in claim 71, further comprising a plurality of apparatus spaced along the wellbore.

98. An apparatus as in claim 97, wherein the plurality of apparatus are positioned in a production string, the production string for extending through the wellbore along a production zone of the formation.

99. An apparatus as in claim 3, wherein the first passageway will provide a greater rate of increase in resistance in response to increased flow rate than the second passageway.

100. An apparatus as in claim 3, wherein the second passageway will provide a lesser rate of increase in resistance in response to increased flow rate than the first passageway.

101. A pathway dependent resistance system, comprising:

a vortex chamber;

at least a first inlet; and

an outlet, the first inlet of the pathway dependent resistance system in fluid communication with a flow direction control system, the flow from the flow direction control system affecting direction flow takes into the pathway dependent resistance system.

102. An apparatus as in claim 101, wherein the direction fluid flow takes into the pathway dependent resistance system is dependent on fluid viscosity.

103. An apparatus as in claim 101, wherein the direction fluid flow takes into the pathway dependent resistance system is dependent on fluid flow rate.

104. An apparatus as in claim 101, wherein the direction fluid flow takes into the pathway dependent resistance system is dependent on fluid density.

105. An apparatus as in claim 102, wherein the pathway dependent resistance system comprises a first and second inlet.

106. An apparatus as in claim 101 wherein the vortex assembly further comprises at least a second outlet.

107. An apparatus as in claim 105 wherein the first inlet of the vortex assembly will direct fluid into the vortex chamber primarily tangentially.

108. An apparatus as in claim 105 wherein the second inlet of the vortex assembly will direct fluid into the vortex chamber primarily radially.

109. An apparatus as in claim 101 wherein the at least one inlet comprises multiple inlets which direct fluid into the vortex chamber primarily tangentially.

110. An apparatus as in claim 101 wherein the at least one inlet comprises multiple inlets which direct fluid into the vortex chamber primarily radially.

111. An apparatus as in claim 101 wherein the at least one inlet comprises at least one inlet for directing fluid into the vortex chamber primarily radially and at least one inlet for directing fluid into the vortex chamber primarily tangentially.

112. An apparatus as in claim 101, further comprising a second vortex chamber, second vortex chamber outlet, and second vortex chamber inlet, the second vortex chamber inlet in fluid communication with the pathway dependent resistance system outlet.

113. An apparatus as in claim 112 wherein the inlet of the second vortex assembly directs fluid into the vortex chamber of the second vortex assembly primarily radially.

114. An apparatus as in claim 112, further comprising a second inlet to the second vortex chamber.

115. An apparatus as in claim 101 wherein the vortex chamber comprises a cylindrical vortex chamber.

116. An apparatus as in claim 101, wherein the flow direction control system comprises multiple passageways.

117. An apparatus as in claim 116, wherein the multiple passageways are in fluid communication with the pathway dependent resistance system inlet.

118. An apparatus as in claim 101, wherein the flow direction control system comprises a flow ratio control system having at least a first and second passageway.

119. An apparatus as in claim 118, wherein the first passageway of the fluid ratio control system is more viscosity-dependent than the second passageway.

120. An apparatus as in claim 119 wherein the first passageway of the flow ratio control system will provide a greater increase in resistance to fluid flow than the second passageway as the fluid viscosity increases.

121. An apparatus as in claim 119 wherein the second passageway of the fluid ratio system will provide less resistance to fluid flow than the first passageway when the fluid viscosity is higher than a target viscosity.

122. An apparatus as in claim 119 wherein the second passageway of the fluid ratio system provides substantially constant resistance to fluid flow regardless of changes in fluid viscosity.

123. An apparatus as in claim 119 wherein the second passageway further comprises a vortex diode.

124. An apparatus as in claim 101, wherein the pathway dependent resistance system will impart a back-pressure on fluid flowing through the apparatus.

125. An apparatus as in claim 118, wherein the first passageway of the flow ratio control system is in fluid communication with the first inlet of the pathway dependent resistance system.

126. An apparatus as in claim 125, wherein the second passageway of the flow ratio control system is in fluid communication with a second inlet of the pathway dependent resistance system.

127. An apparatus as in claim 125, wherein the first and second passageways of the flow ratio control system are both in fluid communication with the first inlet of the pathway dependent resistance system.

128. An apparatus as in claim 103, wherein the fluid will flow into the vortex chamber primarily radially when the fluid flow rate is below a target rate.

129. An apparatus as in claim 128, wherein the fluid will flow into the vortex chamber primarily tangentially when the fluid flow rate is above a target rate.

130. An apparatus as in claim 129, wherein the fluid will continue to flow into the vortex chamber primarily tangentially when the fluid flow rate increases above a target rate and then decreases below the target rate.

131. An apparatus as in claim 103, wherein the flow direction control system comprises a flow ratio system having at least a first and second passageway.

132. An apparatus as in claim 131, wherein the flow ratio system comprises a bistable switch.

133. An apparatus as in claim 131, wherein the second passageway of the fluid ratio system will provide less resistance to fluid flow than the first passageway when the fluid flow rate is lower than a target flow rate.

134. An apparatus as in claim 131, wherein the second passageway of the fluid ratio system provides substantially constant resistance to fluid flow regardless of changes in fluid flow rate.

135. An apparatus as in claim 131, wherein the first inlet of the pathway dependent resistance system is in fluid communication with the first passageway of the flow ratio control system.

136. An apparatus as in claim 135, wherein the pathway dependent resistance system has a second inlet and the second inlet is in fluid communication with the second passageway of the flow ratio control system.

137. An apparatus as in claim 131, further comprising a fluid amplifier system interposed between the fluid ratio system and the pathway dependent resistance system and in fluid communication with both.

138. An apparatus as in claim 137, wherein the fluid ratio system further comprises a primary flow passageway, the primary flow passageway in fluid communication with the fluid amplifier system.

139. An apparatus as in claim 104, wherein the fluid will flow into the vortex chamber primarily radially when the fluid density is above a target rate.

140. An apparatus as in claim 139, wherein the fluid will flow into the vortex chamber primarily tangentially when the fluid density is below a target rate.

141. An apparatus as in claim 104, wherein the flow direction control system comprises a flow ratio system having at least a first and second passageway.

142. An apparatus as in claim 141, wherein the first passageway of the fluid ratio control is more density dependent than the second passageway.

143. An apparatus as in claim 141, wherein the second passageway of the fluid ratio system will provide less of an increase in resistance to fluid flow than the first passageway when the fluid density increases.

144. An apparatus as in claim 101, wherein the pathway dependent resistance system is positioned in an oilfield tubular for positioning downhole in a wellbore extending through a subterranean formation.

145. An apparatus as in claim 144, wherein the pathway dependent resistance system is for controlling production fluid flow and wherein the apparatus selects natural gas production over water production.

146. An apparatus as in claim 144, wherein the pathway dependent resistance system is for controlling production fluid flow and wherein the apparatus selects oil production over water production.

147. An apparatus as in claim 144, wherein the pathway dependent resistance system is for controlling production fluid flow and wherein the apparatus selects oil production over natural gas production.

148. An apparatus as in claim 144, wherein the pathway dependent resistance system is for controlling the injection of injection fluid into the formation.

149. An apparatus as in claim 148, wherein the injection fluid is steam.

150. An apparatus as in claim 149, wherein the pathway dependent resistance system selects injection of steam over injection of water.

151. An apparatus as in claim 150, wherein the pathway dependent resistance system will provide lower resistance to flow as the composition of the injection fluid changes to a higher percentage of steam.

152. A flow control system, comprising:

a flow ratio control system having at least a first passageway and a second passageway, wherein the ratio of fluid flow through the first passageway and second passageway is related to the characteristic of the fluid flow; and

a pathway dependent resistance system having a vortex chamber with at least a first inlet and an outlet, the first inlet of the pathway dependent resistance system in fluid communication with either the first or second passageway or both of the fluid ratio control system, variations in the ratio of flow coming from the first and second passageway affecting the relative resistance of the total fluid moving through the pathway dependent resistance system.

153. An apparatus as in claim 152, wherein the characteristic is viscosity.

154. An apparatus as in claim 152, wherein the characteristic is fluid flow rate.

155. An apparatus as in claim 152, wherein the characteristic is density.

156. An apparatus as in claim 153, wherein the first passageway of the fluid ratio control system is more viscosity-dependent than the second passageway.

157. An apparatus as in claim 156 wherein the first passageway of the fluid ratio control system has a consistent diameter along its length.

158. An apparatus as in claim 156 wherein the first passageway of the flow ratio control system will provide a greater increase in resistance to fluid flow than the second passageway as the fluid viscosity increases.

159. An apparatus as in claim 153 wherein the second passageway of the fluid ratio system will provide less resistance to fluid flow than the first passageway when the fluid viscosity is higher than a target viscosity.

160. An apparatus as in claim 156 wherein the second passageway of the fluid ratio system provides substantially constant resistance to fluid flow regardless of changes in fluid viscosity.

161. An apparatus as in claim 156 wherein the second passageway further comprises a vortex diode.

162. An apparatus as in claim 152, wherein the pathway dependent resistance system will impart a back-pressure on fluid flowing through the apparatus.

163. An apparatus as in claim 152 wherein the first inlet of the vortex assembly is in fluid communication with the first passageway of the flow ratio control system and wherein the second inlet of the vortex assembly is in fluid communication with the second passageway of the flow ratio control system.

164. An apparatus as in claim 152 wherein the vortex assembly further comprises at least a second outlet.

165. An apparatus as in claim 152 wherein the first inlet of the vortex assembly will direct fluid into the vortex chamber primarily tangentially.

166. An apparatus as in claim 165 wherein the second inlet of the vortex assembly will direct fluid into the vortex chamber primarily radially.

167. An apparatus as in claim 152 wherein the vortex chamber comprises a cylindrical vortex chamber.

168. An apparatus as in claim 152 further comprising a fluid amplifier system interposed between the fluid ratio system and the pathway dependent resistance system and in fluid communication with both.

169. An apparatus as in claim 168 wherein the fluid amplifier system comprises a proportional amplifier.

170. An apparatus as in claim 168 wherein the fluid amplifier system comprises a bistable amplifier.

171. An apparatus as in claim 168 wherein the fluid ratio system further comprises a primary flow passageway, the primary flow passageway in fluid communication with the fluid amplifier system.

172. An apparatus as in claim 171 wherein the first and second passageways of the flow ratio control system will direct flow from the primary passageway.

173. An apparatus as in claim 152 further comprising multiple fluid amplifier systems interposed between the fluid ratio system and the pathway dependent resistance system, the fluid amplifier systems arranged in series.

174. An apparatus as in claim 154, wherein the first passageway of the fluid ratio control system will provide a lesser increase in resistance than the second passageway to fluid flow as the flow rate increases.

175. An apparatus as in claim 154, wherein the flow ratio control system comprises a bistable switch.

176. An apparatus as in claim 154, wherein the second passageway of the fluid ratio system will provide less resistance to fluid flow than the first passageway when the fluid flow rate is lower than a target flow rate.

177. An apparatus as in claim 154, wherein the second passageway of the fluid ratio system provides substantially constant resistance to fluid flow regardless of changes in fluid flow rate.

178. An apparatus as in claim 155, wherein the first passageway of the fluid ratio control is more density-dependent than the second passageway.

179. An apparatus as in claim 178, wherein the second passageway will provide substantially constant resistance to fluid flow as the density changes.

180. An apparatus as in claim 154, wherein the second passageway of the fluid ratio system will provide less resistance to fluid flow than the first passageway when the fluid density is higher than a target density.

181. An apparatus as in claim 152 wherein the flow control system is positioned in an oilfield tubular for positioning downhole in a wellbore extending through a subterranean formation.

182. An apparatus as in claim 181, wherein the oilfield tubular has an interior passageway in fluid communication with the flow ratio control system.

183. An apparatus as in claim 182, wherein formation fluid will flow from the formation into the tubular interior passageway.

184. An apparatus as in claim 181, wherein the flow control system is for controlling production fluid flow and wherein the apparatus selects oil production over natural gas production.

185. An apparatus as in claim 181, wherein the flow control system is for controlling production fluid flow and wherein the apparatus selects natural gas production over water production.

186. An apparatus as in claim 181, wherein the flow control system is for controlling production fluid flow and wherein the apparatus selects oil production over water production.

187. An apparatus as in claim 184, wherein the flow control system will provide higher resistance to flow as the composition of the formation fluid changes to a higher percentage of natural gas.

188. An apparatus as in claim 181, further comprising a plurality of flow control systems.

189. An apparatus as in claim 181, the flow control system for controlling injection of injection fluid from the oilfield tubular into the formation.

190. An apparatus as in claim 189, wherein the flow control system selects injection of steam over injection of water.

191. An apparatus as in claim 181, wherein the flow control system is for controlling flow of cementing fluid from the exterior of the oilfield tubular to the interior of the oilfield tubular during reverse cementing.

192. An apparatus as in claim 191, wherein the flow control system will provide higher resistance to flow of cementing fluid as the composition of the cementing fluid changes to a higher viscosity.

193. An apparatus as in claim 191, wherein the flow control system will provide higher resistance to flow of cementing fluid as the composition of the cementing fluid changes to a higher density.

194. An apparatus as in claim 191, wherein the flow control system will provide higher resistance to flow of cementing fluid as the composition of the cementing fluid changes to a higher flow rate.

195. An apparatus as in claim 191, further comprising a movable plug mounted in an interior passageway of the oilfield tubular and operable to restrict fluid flow into the interior passageway.

196. An apparatus as in claim 191, wherein the flow ratio control system and pathway dependent resistance system are positioned within the movable plug.

197. An apparatus as in claim 181, further comprising a screen assembly for sand control.

198. An apparatus as in claim 181, further comprising an inflow control device in fluid communication with the flow ratio control system.

199. An apparatus as in claim 181, further comprising a plurality of flow control systems spaced along the wellbore.

200. An apparatus as in claim 199, wherein the plurality of flow control systems are positioned in a production string, the production string for extending through the wellbore along a production zone of the formation.

What is claimed is:

1. An invention not claimed in any divisional application.