WHAT IS CLAIMED IS:

1. A well tool, comprising:

a generally tubular mandrel including a flow passage extending longitudinally through the mandrel; and

a flow controller which initially prevents a fluid from contacting a swellable material, but which permits the fluid to contact the swellable material in response to manipulation of pressure in the flow passage.

2. The well tool of claim 1, wherein the swellable material extends circumferentially about an exterior of the mandrel.

3. The well tool of claim 1, wherein the fluid is disposed in a reservoir of the well tool.

4. The well tool of claim 3, wherein the reservoir is isolated from pressure in the flow passage.

5. The well tool of claim 3, wherein the reservoir is isolated from pressure exterior to the well tool.

6. The well tool of claim 3, wherein a biasing device applies pressure to the fluid in the reservoir.

7. The well tool of claim 3, wherein pressure in the flow passage is transmitted to at least one flow control

device of the flow controller, the flow control device selectively preventing and permitting fluid communication between the reservoir and the swellable material.

8. The well tool of claim 7, wherein the flow control device comprises at least one of a rupture disc and a valve.

9. The well tool of claim 7, further comprising a pressure equalizing device which isolates the fluid from the flow passage.

10. The well tool of claim 1, wherein the flow controller permits contact between the fluid and the swellable material in response to application of a predetermined elevated pressure in the flow passage.

11. A well tool, comprising:

a swellable material;

a generally tubular mandrel; and

a conduit wrapped circumferentially about the mandrel, the conduit containing a fluid which, upon contact with the swellable material, causes the swellable material to swell.

12. The well tool of claim 11, wherein the conduit is isolated from pressure in a flow passage extending longitudinally through the mandrel.

13. The well tool of claim 11, wherein a flow controller selectively permits contact between the fluid and

the swellable material in response to increased pressure within the conduit.

14. The well tool of claim 13, wherein pressure within the conduit increases in response to thermal expansion of the fluid therein.

15. The well tool of claim 13, wherein pressure within the conduit increases in response to manipulation of pressure in a flow passage extending longitudinally through the mandrel.

16. The well tool of claim 11, wherein the swellable material extends circumferentially about the mandrel.

17. A method of actuating a well tool in a subterranean well, the method comprising the step of:

manipulating pressure in a flow passage extending through a tubular string, thereby opening at least one flow control device of the well tool which selectively permits fluid communication between a reservoir of the well tool and a swellable material of the well tool, whereby a fluid in the reservoir contacts the swellable material.

18. The method of claim 17, wherein the swellable material extends circumferentially about a generally tubular mandrel of the well tool, and wherein the mandrel is interconnected as a part of the tubular string, in the pressure manipulating step.

19. The method of claim 17, wherein the pressure manipulating step further comprises transmitting pressure in the flow passage to an exterior of a conduit extending circumferentially about a generally tubular mandrel of the well tool, the mandrel being interconnected as a part of the tubular string, and the reservoir comprising an interior of the conduit.

20. The method of claim 17, wherein the flow control device comprises at least one of a rupture disc and a valve in the pressure manipulating step.

21. A well tool, comprising:

a swellable material; and

a flow controller which initially prevents a fluid from contacting the swellable material, but which permits the fluid to contact the swellable material in response to receipt of a signal transmitted via telemetry from a remote location.

22. The well tool of claim 21, wherein the swellable material extends circumferentially about an exterior of a generally tubular mandrel.

23. The well tool of claim 21, wherein the fluid is disposed in a reservoir of the well tool.

24. The well tool of claim 23, wherein the reservoir is isolated from pressure in a flow passage extending longitudinally through a generally tubular mandrel, the

swellable material extending circumferentially about an exterior of the mandrel.

25. The well tool of claim 23, wherein the reservoir is isolated from pressure exterior to the well tool.

26. The well tool of claim 23, wherein a biasing device applies pressure to the fluid in the reservoir.

27. The well tool of claim 21, wherein the signal is selected from a group comprising acoustic, pressure pulse, tubular string manipulation and electromagnetic signals.

WHAT IS CLAIMED IS:

1. A well tool, comprising:

a generally tubular mandrel including a flow passage extending longitudinally through the mandrel;

a reservoir containing a fluid; and

a flow controller which initially prevents the fluid from contacting a swellable material, but which permits the fluid to contact the swellable material in response to manipulation of pressure in at least one of the flow passage and an annulus surrounding the well tool,

wherein at least one of a biasing device, pressure from the flow passage, and pressure from the annulus pressurizes the fluid in the reservoir, whereby the fluid is forced out of the reservoir and into contact with the swellable material when the fluid is permitted by the flow controller to contact the swellable material.

2. The well tool of claim 1, wherein the swellable material extends circumferentially about an exterior of the mandrel.

3. The well tool of claim 1, wherein the fluid causes swelling of the swellable material.

4. The well tool of claim 1, wherein the reservoir is isolated from the flow passage pressure.

5. The well tool of claim 1, wherein the reservoir is isolated from the annulus pressure.

6. The well tool of claim 1, wherein the flow passage pressure is transmitted to at least one flow control device of the flow controller, the flow control device selectively preventing and permitting fluid communication between the reservoir and the swellable material.

7. The well tool of claim 6, wherein the flow control device comprises at least one of a rupture disc and a valve.

8. A well tool, comprising:

a generally tubular mandrel including a flow passage extending longitudinally through the mandrel;

a reservoir containing a fluid;

a flow controller which initially prevents the fluid from contacting a swellable material, but which permits the fluid to contact the swellable material in response to manipulation of pressure in at least one of the flow passage and an annulus surrounding the well tool,

wherein at least one of a biasing device, pressure from the flow passage, and pressure from the annulus pressurizes the fluid in the reservoir, whereby the fluid is forced out of the reservoir and into contact with the swellable material when the fluid is permitted by the flow controller to contact the swellable material, and

wherein the flow passage pressure is transmitted to at least one flow control device of the flow controller, the flow control device selectively preventing and permitting fluid communication between the reservoir and the swellable material; and

a pressure equalizing device which isolates the fluid from the flow passage.

9. The well tool of claim 1, wherein the flow controller permits contact between the fluid and the swellable material in response to application of a predetermined elevated pressure in the flow passage.

10. A method of actuating a well tool in a subterranean well, the method comprising the steps of:

manipulating pressure in at least one of a flow passage extending through a tubular string and an annulus surrounding the tubular string, thereby opening at least one flow control device of the well tool which selectively permits fluid communication between a reservoir of the well tool and a swellable material of the well tool; and

pressurizing a fluid in the reservoir using at least one of a biasing device, pressure from the flow passage, and pressure from the annulus, whereby the fluid is forced out of the reservoir and into contact with the swellable material when fluid communication between the reservoir and the swellable material is permitted by the flow control device.

11. The method of claim 10, wherein the swellable material extends circumferentially about a generally tubular mandrel of the well tool, and wherein the mandrel is interconnected as a part of the tubular string, in the pressure manipulating step.

12. The method of claim 10, wherein the flow control device comprises at least one of a rupture disc and a valve in the pressure manipulating step.

13. The method of claim 10, wherein the fluid causes swelling of the swellable material.

14. A well tool, comprising:

a swellable material;

a reservoir containing a fluid; and

a flow controller which initially prevents the fluid from contacting the swellable material, but which permits the fluid to contact the swellable material in response to receipt of a signal transmitted via telemetry from a remote location,

wherein at least one of a biasing device and pressure exterior to the reservoir pressurizes the fluid in the reservoir, whereby the fluid is forced out of the reservoir and into contact with the swellable material when the fluid is permitted by the flow controller to contact the swellable material.

15. The well tool of claim 14, wherein the swellable material extends circumferentially about an exterior of a generally tubular mandrel.

16. The well tool of claim 14, wherein the fluid causes swelling of the swellable material.

17. The well tool of claim 14, wherein the reservoir is isolated from pressure in a flow passage extending

longitudinally through a generally tubular mandrel, the swellable material extending circumferentially about an exterior of the mandrel.

18. The well tool of claim 14, wherein the reservoir is isolated from annulus pressure.

19. The well tool of claim 14, wherein the signal is selected from a group comprising acoustic, pressure pulse, tubular string manipulation and electromagnetic signals.

20. A well tool, comprising:

a swellable material;

a generally tubular mandrel; and

a reservoir wrapped circumferentially about the mandrel, the reservoir containing a fluid which, upon contact with the swellable material, causes the swellable material to swell, wherein a flow controller selectively permits contact between the fluid and the swellable material in response to increased pressure within the reservoir, and wherein pressure within the reservoir increases in response to manipulation of pressure in a flow passage extending longitudinally through the mandrel.

21. The well tool of claim 20, wherein the reservoir is isolated from pressure in a flow passage extending longitudinally through the mandrel.

22. The well tool of claim 20, wherein pressure within the reservoir increases in response to thermal expansion of the fluid therein.

23. The well tool of claim 20, wherein the swellable material extends circumferentially about the mandrel.

24. A method of actuating a well tool in a subterranean well, the method comprising the step of:

manipulating pressure in a flow passage extending through a tubular string, thereby opening at least one flow control device of the well tool which selectively permits fluid communication between a reservoir of the well tool and a swellable material of the well tool, whereby a fluid in the reservoir contacts the swellable material, wherein the pressure manipulating step further comprises transmitting pressure in the flow passage to an exterior of the reservoir extending circumferentially about a generally tubular mandrel of the well tool, the mandrel being interconnected as a part of the tubular string.

25. The method of claim 24, wherein the swellable material extends circumferentially about a generally tubular mandrel of the well tool.