

WHAT IS CLAIMED IS:

1. A downhole zonal isolation assembly, comprising:
a rotating fracturing valve positionable within wellbore casing proximate a fracturing zone of interest,
a rotating fracturing valve actuator coupled to the rotating fracturing valve; and
rotating fracturing valve electronics coupled to the rotating fracturing valve actuator, the rotating fracturing valve electronics operable to activate the rotating fracturing valve actuator to move the rotating fracturing valve from a first wellbore casing open position to a second wellbore casing closed position.
2. The downhole zonal isolation assembly as recited in Claim 1, wherein the rotating fracturing valve is a rotating flapper valve.
3. The downhole zonal isolation assembly as recited in Claim 1, wherein the rotating fracturing valve is a rotating ball valve.
4. The downhole zonal isolation assembly as recited in Claim 1, wherein the rotating fracturing valve actuator is a release mechanism, and further wherein fluid within the wellbore casing is operable to move the rotating fracturing valve from the first wellbore casing open position to the second wellbore casing closed position.
5. The downhole zonal isolation assembly as recited in Claim 1, wherein the rotating fracturing valve electronics are operable to activate the rotating fracturing valve actuator based upon changes in at least one of time, temperature, pressure or flow.
6. The downhole zonal isolation assembly as recited in Claim 1, wherein the rotating fracturing valve electronics are operable to activate the rotating fracturing valve actuator based upon a signal encoded on the wellbore casing or within fluid within the wellbore casing.

7. The downhole zonal isolation assembly as recited in Claim 1, wherein the rotating fracturing valve electronics are operable to activate the rotating fracturing valve actuator based upon a signal received from a drop ball or drop plug traversing down the wellbore casing.

8. The downhole zonal isolation assembly as recited in Claim 1, wherein at least a portion of the rotating fracturing valve is dissolvable.

9. A well system, comprising:

a wellbore extending into one or more subterranean formations;

wellbore casing located within the wellbore; and

a first downhole zonal isolation assembly positioned within the wellbore casing proximate a first fracturing zone of interest, and a second downhole zonal isolation assembly positioned within the wellbore casing proximate a second fracturing zone of interest, each of the first and second downhole zonal isolation assemblies including;

a rotating fracturing valve positioned within the wellbore casing,

a rotating fracturing valve actuator coupled to the rotating fracturing valve; and

rotating fracturing valve electronics coupled to the rotating fracturing valve actuator, the rotating fracturing valve electronics operable to activate the rotating fracturing valve actuator to move the rotating fracturing valve from the first wellbore casing open position to the second wellbore casing closed position.

10. The well system as recited in Claim 9, wherein the rotating fracturing valve is a rotating flapper valve.

11. The well system as recited in Claim 9, wherein the rotating fracturing valve is a rotating ball valve.

12. The well system as recited in Claim 9, wherein the rotating fracturing valve actuator is a release mechanism, and further wherein fluid within the wellbore casing is operable to move the rotating fracturing valve from the first wellbore casing open position to the second wellbore casing closed position.

13. The well system as recited in Claim 9, wherein the rotating fracturing valve electronics are operable to activate the rotating fracturing valve actuator based upon changes in at least one of time, temperature, pressure or flow.

14. The well system as recited in Claim 9, wherein the rotating fracturing valve electronics are operable to activate the rotating fracturing valve actuator based upon a signal encoded on the wellbore casing or within fluid within the wellbore casing.

15. The well system as recited in Claim 9, wherein the rotating fracturing valve electronics are operable to activate the rotating fracturing valve actuator based upon a signal received from a drop ball or drop plug traversing down the wellbore casing.

16. The well system as recited in Claim 9, wherein at least a portion of the rotating fracturing valve is dissolvable.

17. The well system as recited in Claim 9, further including a first downhole fracturing tool assembly positioned uphole of the first downhole zonal isolation assembly and proximate the first fracturing zone of interest, and a second downhole fracturing tool assembly positioned between the first and second zonal isolation assemblies and proximate the second fracturing zone of interest, wherein each of the first and second downhole fracturing tool assemblies include:

a fracturing port cover coupleable to an interior of a wellbore casing having one or more fracturing ports therein;

a fracturing port cover actuator coupled to the fracturing port cover, the fracturing port cover actuator operable to move the fracturing port cover between a first position sealing the one or more fracturing ports from an interior of the wellbore casing and a second position fully exposing the one or more fracturing ports to the interior of the wellbore casing; and

fracturing port cover electronics coupled to the fracturing port cover actuator proximate the fracturing port cover, the fracturing port cover electronics operable to activate the fracturing port cover actuator.

18. A method for fracturing a well system, comprising:

positioning a first downhole zonal isolation assembly within wellbore casing and proximate a first fracturing zone of interest, and a second downhole zonal isolation assembly within the wellbore casing proximate a second fracturing zone of interest, each of the first and second downhole zonal isolation assemblies including;

a rotating fracturing valve positioned within the wellbore casing;

a rotating fracturing valve actuator coupled to the rotating fracturing valve; and

rotating fracturing valve electronics coupled to the rotating fracturing valve actuator, the rotating fracturing valve electronics operable to activate the rotating fracturing valve actuator to move the rotating fracturing valve from the first wellbore casing open position to the second wellbore casing closed position; and

moving the rotating fracturing valve of the second downhole zonal isolation assembly from its first wellbore casing open position to the second wellbore casing closed position while the rotating fracturing valve of the first downhole zonal isolation assembly remains within its first wellbore casing open position.

19. The method as recited in Claim 18, wherein the second downhole zonal isolation assembly is located downhole of the first downhole zonal isolation assembly, and further including a first downhole fracturing tool assembly positioned uphole of the first downhole zonal isolation assembly and proximate the first fracturing zone of interest, and a second downhole fracturing tool assembly positioned between the first and second zonal isolation assemblies and proximate the second fracturing zone of interest, wherein each of the first and second downhole fracturing tool assemblies include:

a fracturing port cover coupleable to an interior of a wellbore casing having one or more fracturing ports therein;

a fracturing port cover actuator coupled to the fracturing port cover, the fracturing port cover actuator operable to move the fracturing port cover between a first position sealing the one or more fracturing ports from an interior of the wellbore casing and a second position fully exposing the one or more fracturing ports to the interior of the wellbore casing; and

fracturing port cover electronics coupled to the fracturing port cover actuator proximate the fracturing port cover, the fracturing port cover electronics operable to activate the fracturing port cover actuator.

20. The method as recited in Claim 19, further including moving the fracturing port cover of the first downhole fracturing tool assembly to its first position sealing its one or more fracturing ports, moving the fracturing port cover of the second downhole fracturing tool assembly to its second position fully exposing its one or more fracturing ports, and then fracturing the second fracturing zone of interest after moving the rotating fracturing valve of the second downhole zonal isolation assembly from its first wellbore casing open position to the second wellbore casing closed position.