Claims

What is claimed is:

1. A system comprising:

a mandrel positionable within a wellbore;

a retrievable downhole tool positionable around the mandrel to perform tasks downhole in the wellbore; and

a debris ring comprising:

an expandable material positionable around the mandrel to form a debris barrier in response to exposure of the expandable material to wellbore fluid; and

a non-expandable sheath that at least partially encapsulates the expandable material, the non-expandable sheath being non-expandable in at least two directions subsequent to the expandable material being exposed to the wellbore fluid, the non-expandable sheath including one or more inhibitors that are physically bondable to the wellbore fluid for causing a delay in interaction between the wellbore fluid and the expandable material.

2. The system of claim 1, wherein the expandable material comprises an expandable metal material or an expandable elastomeric material that are interactable with the wellbore fluid to expand to form the debris barrier.

3. The system of claim 1, wherein the retrievable downhole tool further comprises a barrier-setting wedge of a barrier-setting system, and wherein the debris ring is positionable such that the debris ring abuts the barrier-setting wedge to provide contact support for the barrier-setting wedge of the barrier-setting system.

4. The system of claim 1, wherein the debris ring further comprises a polymeric material, wherein the polymeric material is combinable with the expandable material to form an expandable composite material.

5. The system of claim 1, wherein the retrievable downhole tool further comprises a grooved surface positionable adjacent to a barrier-setting wedge to allow the retrievable downhole tool to be removed from the wellbore, wherein the grooved surface is positionable to interact with the debris ring to encourage movement of the debris ring in response to movement of the mandrel in an up-hole direction.

6. The system of claim 1, wherein the debris ring is maintainable in an unexpanded state while being exposed to the wellbore fluid for less than a pre-set amount of time and is expandable to create the debris barrier subsequent to being exposed to the wellbore fluid for the pre-set amount of time.

7. The system of claim 1, wherein the expandable material is an expandable metal material, and wherein the debris barrier is formable using a hydrolysis reaction of an alkaline earth metal or a transition metal of the expandable metal material.

8. The system of claim 1, wherein the non-expandable sheath is hydrophobic.

9. The system of claim 8, wherein the non-expandable sheath comprises a grease or a wax.

10. A method comprising:

positioning a mandrel within a wellbore, the mandrel comprising a retrievable downhole tool and a debris ring that includes:

an expandable metal material positioned around the mandrel; and

a non-expandable sheath that at least partially encapsulates the expandable metal material and that is non-expandable in at least two directions in response to the expandable metal material being exposed to wellbore fluid, the non-expandable sheath including one or more inhibitors that are physically bondable to the wellbore fluid for causing a delay in interaction between the wellbore fluid and the expandable metal material;

exposing the expandable metal material to the wellbore fluid to form a debris barrier that abuts a wall of the wellbore from the debris ring; and

maintaining the debris barrier during wellbore-related tasks of the retrievable downhole tool.

11. The method of claim 10, wherein exposing the expandable metal material to wellbore fluid to form a debris barrier includes forming the debris barrier using a hydrolysis reaction of an alkaline earth metal or a transition metal of the expandable metal material.

12. The method of claim 10, wherein the debris ring is maintained in an unexpanded state while being exposed to the wellbore fluid for less than a pre-set amount of time and is expanded to create the debris barrier subsequent to being exposed to the wellbore fluid for the pre-set amount of time.

13. The method of claim 10, wherein the retrievable downhole tool includes a barrier-setting wedge, and wherein the debris ring is positionable such that the debris ring abuts the barrier-setting wedge.

14. The method of claim 10, wherein the debris ring includes a polymeric material, wherein the polymeric material is combined with the expandable metal material to form an expandable composite material.

15. The method of claim 10, further comprising removing the retrievable downhole tool from the wellbore by lifting on the mandrel in an up-hole direction, wherein:

lifting on the mandrel causes a shear pin to shear and causes the debris ring to at least partially displace into a grooved surface of the mandrel to at least partially remove the debris barrier; and

at least partially removing the debris barrier enables efficient removal of the retrievable downhole tool to be removed from the wellbore.

16. A debris ring, comprising:

an expandable metal material positionable around a mandrel and expandable to form a debris barrier in a retrievable downhole tool while downhole in a wellbore in response to exposure of the expandable metal material to wellbore fluid; and

a non-expandable sheath that at least partially encapsulates the expandable metal material, the non-expandable sheath being non-expandable in at least two directions subsequent to the expandable metal material being exposed to the wellbore fluid, the non-expandable sheath including one or more inhibitors that are physically bondable to the wellbore fluid for causing a delay in interaction between the wellbore fluid and the expandable metal material.

17. The debris ring of claim 16, wherein the non-expandable sheath comprises a polymer, a ceramic, an organic material, or a metal.

18. The debris ring of claim 16, wherein the retrievable downhole tool includes a barrier-setting wedge, and wherein the debris ring is positionable such that the debris ring abuts the barrier-setting wedge of the retrievable downhole tool.

19. The debris ring of claim 16, further comprising a polymeric material, wherein the polymeric material is combined with the expandable metal material to form an expandable composite material.

20. The debris ring of claim 16, wherein the debris barrier is formable using a hydrolysis reaction of an alkaline earth metal or a transition metal of the expandable metal material.