

WHAT IS CLAIMED IS:

1. A valve, comprising:
a housing;
a sliding sleeve disposed in the housing and defining an annular flow path between the sliding sleeve and the housing, the sliding sleeve configured to move from a closed position closing the annular flow path to an open position opening the flow path; and
a plug member positioned within the annular flow path, the plug member comprising a metal configured to expand in response to hydrolysis to seal the annular flow path.
2. The valve as recited in Claim 1, wherein the plug member is configured to be protected from reactive fluid when the sliding sleeve is in the closed position and configured to be exposed to the reactive fluid when the sliding sleeve is in the open position.
3. The valve as recited in Claim 1, wherein the plug member is a first plug member, and further including a second plug member positioned within the flow path, the second plug member comprising the metal configured to expand in response to hydrolysis.
4. The valve as recited in Claim 1, wherein the housing and the sliding sleeve form at least a portion of a wet shoe sub.
5. The valve as recited in Claim 1, further including a displacement plug positioned within the sliding sleeve.
6. The valve as recited in Claim 5, wherein the displacement plug includes:
a plug body for landing in the sliding sleeve, wherein at least a portion of the plug body comprises a metal configured to expand in response to hydrolysis to seal against the wellbore tubular; and
one or more displacement fins coupled to the plug body for displacing the plug body downhole.

7. The valve as recited in Claim 6, wherein the plug body includes a nose, wherein at least a portion of the nose comprises the metal configured to expand in response to hydrolysis.

8. The valve as recited in Claim 7, wherein the nose includes a nose nut, the nose nut comprising the metal configured to expand in response to hydrolysis.

9. The valve as recited in Claim 7, wherein the nose includes a tubular, the tubular comprising the metal configured to expand in response to hydrolysis.

10. The valve as recited in Claim 7, wherein the nose includes a lock ring, the lock ring comprising the metal configured to expand in response to hydrolysis.

11. A method for sealing, comprising:
positioning a valve within a wellbore tubular, the valve including;
a housing;
a sliding sleeve disposed in the housing and defining an annular flow path between the sliding sleeve and the housing, the sliding sleeve configured to move from a closed position closing the annular flow path to an open position opening the flow path; and
a plug member positioned within the flow path, the plug member comprising a metal configured to expand in response to hydrolysis to seal the annular flow path;
pumping cement within a wellbore tubular; and
subjecting the plug member to a reactive fluid, thereby forming an expanded metal plug member in the annular flow path.

12. The method as recited in Claim 11, wherein the subjecting occurs after the sliding sleeve has been moved from the closed position to the open position.

13. The method as recited in Claim 11, wherein the reactive fluid is drilling fluid.

14. The method as recited in Claim 11, wherein the reactive fluid is cement slurry.

15. The method as recited in Claim 11, wherein the housing and the sliding sleeve form at least a portion of a wet shoe sub.

16. A well system, comprising:

a wellbore positioned in a subterranean formation; and

a valve positioned within the wellbore, the valve including;

a housing;

a sliding sleeve disposed in the housing and defining an annular flow path between the sliding sleeve and the housing, the sliding sleeve configured to move from a closed position closing the annular flow path to an open position opening the flow path; and

an expanded metal plug member positioned within the annular flow path, the expanded metal plug member comprising a metal that has expanded in response to hydrolysis to seal the annular flow path.

17. The well system as recited in Claim 16, wherein the expanded metal plug member fixes the sliding sleeve in the open position.

18. The well system as recited in Claim 16, wherein the housing and the sliding sleeve form at least a portion of a wet shoe sub.

19. The well system as recited in Claim 16, further including a displacement plug located within the sliding sleeve, and further wherein the displacement plug includes a plug body landed in the sliding sleeve, and one or more displacement fins coupled to the plug body for displacing the plug body downhole.

20. The well system as recited in Claim 16, wherein the plug body includes a nose, wherein at least a portion of the nose comprises expanded metal that has expanded in response to hydrolysis.

21. The well system as recited in Claim 20, wherein the nose includes a nose nut, wherein at least a portion of the nose nut comprises expanded metal that has expanded in response to hydrolysis.

22. The well system as recited in Claim 20, wherein the nose includes a tubular wherein at least a portion of the tubular comprises expanded metal that has expanded in response to hydrolysis.

23. The well system as recited in Claim 20, wherein the nose includes a lock ring, wherein at least a portion of the lock ring comprises expanded metal that has expanded in response to hydrolysis.