CLAIMS

What is claimed is:

1. A method of cementing in a subterranean formation comprising:

providing a set-delayed cement composition comprising pumice, hydrated lime, a phosphonic acid derivative cement set retarder, and water;

storing the set-delayed cement composition in a pumpable fluid state for a time period of at least about 1 day;

reducing the density of the set-delayed cement composition by adding a liquid additive comprising a synthetic smectite and water after the step of storing the set-delayed cement composition;

activating the set-delayed cement composition after the step of storing the set-delayed cement composition;

introducing the set-delayed cement composition into a subterranean formation; and

allowing the set-delayed cement composition to set in the subterranean formation.

2. A method according to claim 1 wherein the density of the set-delayed cement composition is reduced to a range of about 4 pounds per gallon to about 12 pounds per gallon.

3. A method according to any preceding claim wherein the set-delayed cement composition comprises a mechanical-property-enhancing additive.

4. A method according to claim 3 wherein the mechanical-property enhancing additive comprises carbon fibers.

5. A method according to any preceding claim wherein the set-delayed cement composition comprises polyethyleneimine.

6. A method according to any preceding claim wherein the set-delayed cement composition has a density in a range of about 8 pounds per gallon to about 14 pounds per gallon.

7. A method according to any preceding claim wherein the pumice has a mean particle size in a range of about 10 micron to about 25 microns.

8. A method according to any preceding claim wherein the pumice and the hydrated lime are present in a weight ratio of pumice to hydrated lime of about 10:1 to about 1:1.

9. A method according to any preceding claim wherein the set-delayed cement composition further comprises a dispersant and wherein the dispersant comprises at least one dispersant selected from the group consisting of a sulfonated-formaldehyde-based dispersant, a polycarboxylated ether dispersant, and any combination thereof.

10. A method according to any preceding claim wherein the set-delayed cement composition remains in a pumpable fluid state for a time period of at least about 7 days prior to the activating.

11. A method according to any preceding claim further comprising adding a cement set activator to the set-delayed cement composition.

12. A set-delayed cement composition for cementing in a subterranean formation comprising:

pumice,
hydrated lime,
a phosphonic acid derivative cement set retarder,
a liquid additive copmrising a synthetic smectite, and
water.

13. A composition according to claim 12 wherein the set-delayed cement composition further comprises a mechanical-property-enhancing additive.

14. A composition according to claim 13 wherein the mechanical-property enhancing additive comprises carbon fibers.

15. A composition according to any one of claims 12 to 14 wherein the set-delayed cement composition further comprises polyethyleneimine.

16. A composition according to any one of claims 12 to 15 wherein the set-delayed cement composition has a density in a range of about 8 pounds per gallon to about 14 pounds per gallon.

17. A set-delayed cementing system for cementing in a subterranean formation comprising:

a set-delayed cement composition comprising:

water,

pumice,

hydrated lime, and

a phosphonic acid derivative cement set retarder;

a liquid additive comprising a synthetic smectice;

a cement set activator for activating the set-delayed cement composition;

mixing equipment for mixing the set-delayed cement composition and the cement set activator to produce an activated set-delayed cement composition; and

pumping equipment for pumping the activated set-delayed cement composition into the subterranean formation.

18. A system according to claim 17 wherein the set-delayed cement composition further comprises a mechanical-property-enhancing additive and/or polyethyleimine.