What is claimed is:

1. A dry sprinkler assembly for use with a piping network of a fire suppression system, said dry sprinkler assembly comprising:

a 1 inch NPS pipe element having a first end attachable in fluid communication with said piping network;

a valve positioned within said pipe element proximate to said first end, said valve having a first closing member movable between a closed position preventing fluid flow through said pipe element, and an open position permitting fluid flow through said pipe element;

a fire suppression sprinkler mounted on a second end of said pipe element, said sprinkler defining a bore in fluid communication with said pipe element and comprising:

a second closing member in engagement with said bore;

a temperature sensitive trigger engaged with said second closing member and maintaining said second closing member in said engagement until an ambient temperature exceeds a predetermined threshold, said trigger releasing said second closing member from said engagement with said bore when said ambient temperature reaches or exceeds said predetermined threshold; wherein

when said first closing member is in said open position and said second closing member is released from said engagement, said sprinkler assembly achieving a discharge rate equal to or greater than a k factor of 17.

2. The dry sprinkler assembly according to claim 1, further comprising:

a tube coaxially positioned within said pipe element, said tube having an outer perimeter smaller than an inner perimeter of said pipe element and being moveable lengthwise along said pipe element, said first closing member being mounted on a first end of said tube, a

second end of said tube being engaged with said second closing member when said second closing member is in said engagement with said bore.

3. The dry sprinkler assembly according to claim 2, wherein said tube has a round cross section with an outer diameter smaller than an inner diameter of said pipe element.

4. The dry sprinkler assembly according to claim 2, wherein said tube comprises a sidewall defining a plurality of openings therethrough.

5. The dry sprinkler assembly according to claim 4, wherein said openings comprise a plurality of slots oriented lengthwise along said tube.

6. The dry sprinkler assembly according to claim 4, wherein a portion of said sidewall proximate to said second end of said tube has no openings therethrough.

7. The dry sprinkler assembly according to claim 4, wherein said openings comprise at least 30% of a surface area of said sidewall.

8. The dry sprinkler assembly according to claim 2, wherein said valve comprises a seat mounted proximate to said first end of said pipe element, said first closing member being engageable with said seat.

9. The dry sprinkler assembly according to claim 8, wherein said first closing member comprises:

a platform pivotably mounted on said first end of said tube;

an obturation body mounted on said platform, said obturation body being pivotable between a first position facing said seat and engageable therewith, and a second position angularly oriented relative to said seat.

10. The dry sprinkler assembly according to claim 9, wherein said obturation body comprises a Bellville washer.

11. The dry sprinkler assembly according to claim 9, further comprising:

a pivot support mounted on said first end of said tube, said platform being pivotably mounted on said pivot support;

a stop surface positioned on said pivot support;

a projection extending from said platform and engageable with said stop surface to limit pivoting motion of said platform.

12. The dry sprinkler assembly according to claim 9, further comprising a biasing member acting between said tube and said platform for biasing said obturation body into said second position.

13. The dry sprinkler assembly according to claim 2, wherein said sprinkler comprises:

a body defining said bore;

a pair of arms extending from said body away from said second end of said pipe element;

a deflector plate mounted on said arms, said trigger being positioned between said deflector plate and said second closing member.

14. The dry sprinkler assembly according to claim 13, wherein said trigger comprises a frangible vial filled with a heat sensitive liquid.

15. The dry sprinkler assembly according to claim 13, wherein said sprinkler comprises at least one stop surface engageable with said tube to limit sliding motion thereof relative to said pipe element.

16. The dry sprinkler assembly according to claim 15, wherein said stop surface comprises at least one projection extending from one of said arms.

17. The dry sprinkler assembly according to claim 16, wherein said sprinkler further comprises a nipple extending from said body, said nipple having male screw threads thereon.

18. The dry sprinkler assembly according to claim 15, wherein:

said sprinkler comprises a shoulder on said body, said shoulder projecting into said bore, said shoulder defining said stop surface;

said tube comprises at least one detent projecting outwardly therefrom, said at least one detent being positioned in spaced relation from said second end of said tube and engageable with said stop surface upon motion of said tube within said pipe element.

19. The dry sprinkler assembly according to claim 18, wherein said shoulder comprises an annulus surrounding said bore.

20. The dry sprinkler assembly according to claim 18, wherein said body comprises female threads surrounding said bore.

21. The dry sprinkler assembly according to claim 1, wherein said second closing member comprises a plug.

22. The dry sprinkler assembly according to claim 21, wherein said plug comprises a plurality of plug bodies engageable with said bore, said plug bodies defining a gap permitting draining of condensate from said pipe element.

23. The dry sprinkler assembly according to claim 22, further comprising a trigger bearing engageable with said plurality of plug bodies and said trigger.

24. The dry sprinkler assembly according to claim 1, wherein said 1 inch NPS pipe element has a wall thickness less than 0.095 inches.

25. The dry sprinkler assembly according to claim 4, further comprising a flow conditioning collar attached to said tube proximate to said second end thereof, said collar overlying at least a portion of said plurality of openings in said sidewall of said tube.

26. A dry sprinkler assembly for use with a piping network of a fire suppression system, said dry sprinkler assembly comprising:

a 1 inch NPS pipe element having a first end attachable in fluid communication with said piping network;

a valve positioned within said pipe element proximate to said first end, said valve having a first closing member movable between a closed position preventing fluid flow through said pipe element, and an open position permitting fluid flow through said pipe element, said valve comprising a seat mounted proximate to said first end of said pipe element, said first closing member being engageable with said seat;

a tube coaxially positioned within said pipe element, said tube having an outer perimeter smaller than an inner perimeter of said pipe element and being moveable lengthwise along said pipe element, said first closing member being mounted on a first end of said tube, said first closing member comprising:

a pivot support mounted on said first end of said tube, a platform being pivotably mounted on said pivot support;

an obturation body mounted on said platform, said obturation body being pivotable between a first position facing said seat and engageable therewith, and a second position angularly oriented relative to said seat;

a stop surface positioned on said pivot support;

a projection extending from said platform and engageable with said stop surface to limit pivoting motion of said platform; wherein

a fire suppression sprinkler is mounted on a second end of said pipe element, said sprinkler defining a bore in fluid communication with said pipe element, said sprinkler further comprising:

a second closing member in engagement with said bore, a second end of said tube being engaged with said second closing member when said second closing member is in said engagement with said bore;

a temperature sensitive trigger engaged with said second closing member and maintaining said second closing member in said engagement until an ambient temperature exceeds a predetermined threshold, said trigger releasing said second closing member from said engagement with said bore when said ambient temperature reaches or exceeds said predetermined threshold; wherein

when said first closing member is in said open position and said second closing member is released from said engagement, said sprinkler assembly achieves a discharge rate equal to or greater than a k factor of 11.2.

27. The dry sprinkler assembly according to claim 26, wherein said tube has a round cross section with an outer diameter smaller than an inner diameter of said pipe element.

28. The dry sprinkler assembly according to claim 26, wherein said tube comprises a sidewall defining a plurality of openings therethrough.

29. The dry sprinkler assembly according to claim 28, wherein said openings comprise a plurality of slots oriented lengthwise along said tube.

30. The dry sprinkler assembly according to claim 28, wherein a portion of said sidewall proximate to said second end of said tube has no openings therethrough.

31. The dry sprinkler assembly according to claim 28, wherein said openings comprise at least 30% of a surface area of said sidewall.

32. The dry sprinkler assembly according to claim 26, wherein said obturation body comprises a Bellville washer.

33. The dry sprinkler assembly according to claim 26, further comprising a biasing member acting between said tube and said platform for biasing said obturation body into said second position.

34. The dry sprinkler assembly according to claim 26, wherein said sprinkler comprises:

a body defining said bore;

a pair of arms extending from said body away from said second end of said pipe element;

a deflector plate mounted on said arms, said trigger being positioned between said deflector plate and said second closing member.

35. The dry sprinkler assembly according to claim 34, wherein said trigger comprises a frangible vial filled with a heat sensitive liquid.

36. The dry sprinkler assembly according to claim 34, wherein said sprinkler comprises at least one stop surface engageable with said tube to limit sliding motion thereof relative to said pipe element.

37. The dry sprinkler assembly according to claim 36, wherein said stop surface comprises at least one projection extending from one of said arms.

38. The dry sprinkler assembly according to claim 37, wherein said sprinkler further comprises a nipple extending from said body, said nipple having male screw threads thereon.

39. The dry sprinkler assembly according to claim 36, wherein:

said sprinkler comprises a shoulder on said body, said shoulder projecting into said bore, said shoulder defining said stop surface;

said tube comprises at least one detent projecting outwardly therefrom, said at least one detent being positioned in spaced relation from said second end of said tube and engageable with said stop surface upon motion of said tube within said pipe element.

40. The dry sprinkler assembly according to claim 39, wherein said shoulder comprises an annulus surrounding said bore.

41. The dry sprinkler assembly according to claim 39, wherein said body comprises female threads surrounding said bore.

42. The dry sprinkler assembly according to claim 26, wherein said second closing member comprises a plug.

43. The dry sprinkler assembly according to claim ~~26~~42, wherein said plug comprises a plurality of plug bodies engageable with said bore, said plug bodies defining a gap permitting draining of condensate from said pipe element.

44. The dry sprinkler assembly according to claim 43, further comprising a trigger bearing engageable with said plurality of plug bodies and said trigger.

45. The dry sprinkler assembly according to claim 26, wherein said 1 inch NPS pipe element has a wall thickness less than 0.095 inches.

46. The dry sprinkler assembly according to claim 28, further comprising a flow conditioning collar attached to said tube proximate to said second end thereof, said collar overlying at least a portion of said plurality of openings in said sidewall of said tube.

47. The dry sprinkler assembly according to claim 2, wherein said sprinkler comprises:

a body defining said bore, said body comprising female threads surrounding said bore;

a pair of arms extending from said body away from said second end of said pipe element, said second end of said pipe element having male screw threads thereon engaging said female threads surrounding said bore;

a deflector plate mounted on said arms, said trigger being positioned between said deflector plate and said second closing member.

48. The dry sprinkler assembly according to claim 26, wherein said sprinkler comprises:

a body defining said bore, said body comprising female threads surrounding said bore;

a pair of arms extending from said body away from said second end of said pipe element, said second end of said pipe element having male screw threads thereon engaging said female threads surrounding said bore;

a deflector plate mounted on said arms, said trigger being positioned between said deflector plate and said second closing member.