We claim:

1. A manifold body comprising:

first and second valve segments each comprising an annular upper perimeter wall portion defining a valve cavity and a lower base portion defining first and second flow ports, wherein the upper perimeter wall of the first valve segment includes a portion that is fused with an adjacent portion of the upper perimeter wall of the second valve segment; and

a conduit segment defining a fluid flow path including a first leg flow path portion defining a conduit end portion and a second leg flow path portion extending from the first leg flow path portion to one of the first and second flow ports of the first valve segment;

wherein the conduit segment is a metal conduit segment, and the second leg flow path portion includes a horizontal passage having a teardrop-shaped cross section with a narrower upper portion and a wider lower portion, wherein the one of the first and second flow ports of the first valve segment intersects with the narrower upper portion of the horizontal passage.

2. The manifold body of claim 1, wherein the lower base portion of at least one of the first and second valve segments has an outer diameter that is smaller than an outer diameter of the corresponding upper perimeter wall portion.

3. The manifold body of any of claims 1 and 2, wherein the second leg flow path portion of the conduit segment is at least partially laterally aligned with the valve cavity of at least one of the first and second valve segments.

4. The manifold body of any of claims 1-3, further comprising at least one aperture mounting boss that is fused with an adjacent portion of the upper perimeter wall of one of the first and second valve segments.

5. The manifold body of any of claims 1-4, further comprising a second conduit segment comprising a first leg flow path portion defining a conduit end portion and a second leg flow path portion extending from the first leg flow path portion to one of the first and second flow ports of the second valve segment.

6. The manifold body of any of claims 1-5, further comprising a third valve segment comprising an annular upper perimeter wall portion defining a valve cavity and a lower base portion defining first and second flow ports, wherein the upper perimeter wall of the third valve segment includes a portion that is fused with an adjacent portion of the upper perimeter wall of at least one of the first and second valve segments.

7. The manifold body of any of claims 1-6, wherein the fluid flow path includes one or more discontinuities adapted to provide increases in one or more of flow shear, flow compression, and flow incidence when the fluid flow path is treated with an abrasive laden fluid.

8. The manifold body of any of claims 1-7, wherein the flow path has a first cross-sectional shape at a first cross-sectional plane of the fluid flow path and a second cross-sectional shape different from the first cross-sectional shape at a second cross-sectional plane of the fluid flow path.

9. The manifold body of claim 8, wherein the first cross-sectional shape is circular and the second cross-sectional shape is teardrop shaped.

10. The manifold body of any of claims 8 and 9, wherein the first cross-sectional plane is disposed in the first leg flow path portion and the second cross-sectional plane is disposed in the second leg flow path portion.

11. The manifold body of any of claims 8 and 9, wherein the first cross-sectional plane and the second cross-sectional plane are both disposed in the same one of the first leg flow path portion and the second leg flow path portion.

12. The manifold body of any of claims 1-11, wherein the flow path has a first cross-sectional area at a first cross-sectional plane of the fluid flow path and a second cross-sectional area smaller than the first cross-sectional area at a second cross-sectional plane of the fluid flow path.

13. The manifold body of claim 12, wherein the first cross-sectional plane is disposed in the first leg flow path portion and the second cross-sectional plane is disposed in the second leg flow path portion.

14. The manifold body of claim 12, wherein the first cross-sectional plane and the second cross-sectional plane are both disposed in the same one of the first leg flow path portion and the second leg flow path portion.

15. The manifold body of any of claims 1-14, wherein at least one of the first leg flow path portion and the second leg flow path portion includes internal surfaces that are tapered radially inward.

16. The manifold body of claim 15, wherein the internal surfaces of the at least one of the first leg flow path portion and the second leg flow path portion are tapered between approximately 15% and approximately 30% per inch of port length of the at least one of the first leg flow path portion and the second leg flow path portion.

17. The manifold body of claim 16, wherein the tapered internal surfaces of the at least one of the first leg flow path portion and the second leg flow path portion are stepped.

18. The manifold body of any of claims 1-17, wherein one of the first leg flow path portion and the second leg flow path portion has a first cross-sectional center line at a first cross-sectional plane and a second cross-sectional center-line non-coaxial with the first cross-sectional center line at a second cross-sectional plane.

19. The manifold body of claim 18, wherein the other of the first leg flow path portion and the second leg flow path portion has a first cross-sectional center line at a first cross-sectional plane and a second cross-sectional center-line non-coaxial with the first cross-sectional center line at a second cross-sectional plane.

20. The manifold body of any of claims 1-19, wherein at least a portion of the fluid flow path includes a pattern of surface discontinuities.

21. The manifold body of claim 20, wherein the pattern of surface discontinuities comprises an array of dimples.

22. The manifold body of claim 21, wherein each dimple in the array of dimples has a spherical radius of approximately $1/10^{th}$ of an effective bore diameter of the fluid flow path, and a dimple depth of approximately $1/50^{th}$ of the effective bore diameter of the fluid flow path.

23. The manifold body of any of claims 1-22, wherein the manifold body is a monolithic component.

24. The manifold body of any of claims 1-23, wherein at least a portion of the manifold body is produced using additive manufacturing techniques.

25. The manifold body of any of claims 1-24, wherein the second leg flow path portion of the conduit segment is at least partially laterally aligned with the valve cavity of the second valve segment and in fluid isolation from the valve cavity of the second valve segment.

26. A valve manifold assembly including the manifold body of any of claims 1-25, a first valve subassembly installed in the valve cavity of the first valve segment, and a second valve subassembly installed in the valve cavity of the second valve segment.

27. The valve manifold assembly of claim 26, wherein the first valve subassembly is threadably engaged with a threaded portion of the perimeter wall of the first valve segment, and the second valve subassembly is threadably engaged with a threaded portion of the perimeter wall of the second valve segment.

28. The manifold body of any of claims 1-25,

wherein the second leg flow path portion of the conduit segment is at least partially laterally aligned with the valve cavity of the second valve segment and in fluid isolation from the valve cavity of the second valve segment.

29. The manifold body of claim 28, wherein the conduit end portion defines a tubular portion spaced apart from a remainder of the manifold body.

30. A manifold body comprising:

first and second valve segments each comprising an annular upper perimeter wall portion defining a valve cavity and a lower base portion defining first and second flow ports, wherein the upper perimeter wall of the first valve segment includes a portion that is fused with an adjacent portion of the upper perimeter wall of the second valve segment; and

a metal conduit segment defining a fluid flow path including a first leg flow path portion defining a conduit end portion and a second leg flow path portion extending from the first leg flow path portion to one of the first and second flow ports of the first valve segment;

wherein the second leg flow path portion includes a horizontal passage having a teardrop-shaped cross section with a narrower upper portion and a wider lower portion, wherein the one of the first and second flow ports of the first valve segment intersects with the narrower upper portion of the horizontal passage.