Claims:

1. A method of measuring the volume flow rate of a liquid, comprising:
providing a flow of the liquid;
tapping off a portion of the flow of liquid and using a Coriolis meter to measure the density of that portion of the flow of liquid;
passing at least part of the flow of liquid through a Venturi meter; and
using the density of the liquid as measured by the Coriolis meter in calculating the volume flow rate of fluid through the Venturi meter.

2. A method as claimed in claim 1, in which the Venturi meter is a wedge meter.

3. A method as claimed in claim 1 or claim 2, in which the flow of liquid is supplied by a centrifugal pump.

4. A method as claimed in any one of the preceding claims in which at least part of the liquid flows through a positive displacement pump.

5. A method as claimed in claim 4, further comprising the step of using:
the volume flow rate through the Venturi meter; and
the volume flow rate through the Coriolis meter,
to calculate the volume flow rate through the positive displacement pump.

6. A method as claimed in claim 5, further comprising:
counting the pump strokes of the positive displacement pump;
using the count of pump strokes to calculate the volume flow rate through the positive displacement pump; and
comparing:
the volume flow rate through the positive displacement pump as calculated by counting the pump strokes; with
the volume flow rate through the positive displacement pump as calculated by using the volume flow rate through the Coriolis meter and the Venturi meter.

7. A method as claimed in any one of the preceding claims, in which the liquid is a slurry.

8. A method as claimed in claim 7, in which the slurry is a drilling mud.

9. Apparatus for measuring the volume flow rate of a flow of liquid, comprising in combination:

a Coriolis meter which is adapted to measure the density of a portion of the flow of liquid;

a Venturi meter which is adapted to measure a pressure differential which is generated by the flow of at least a portion of the liquid through it; and

means which is adapted to use:

the density measured by the Coriolis meter; and

the pressure differential measured by the Venturi meter,

to calculate the volume flow rate of fluid through the Venturi meter.

10. Apparatus as claimed in claim 9, in which the Venturi meter is a wedge meter.

11. Apparatus as claimed in claim 9 or claim 10, in which the flow of liquid is supplied by a centrifugal pump.

12. Apparatus as claimed in any one of claim 9 to 11, further comprising a positive displacement pump and in which at least part of the liquid flows through the positive displacement pump.

13. Apparatus as claimed in claim 12, further comprising means to calculate the volume flow rate through the positive displacement pump, using:

the volume flow rate through the Venturi meter; and

the volume flow rate through the Coriolis meter,

14. Apparatus as claimed in claim 13, further comprising:

counting means for counting the pump strokes of the positive displacement pump;

calculating means for using the count of pump strokes to calculate the volume flow rate through the positive displacement pump; and

comparing means for comparing:

the volume flow rate through the positive displacement pump as calculated by counting the pump strokes; with

the volume flow rate through the positive displacement pump as calculated by using the volume flow rate through the Coriolis meter and the Venturi meter.

15. Apparatus as claimed in any one of claims 9 to 14, in which the liquid is a slurry.

16. Apparatus as claimed in claim 15, in which the slurry is a drilling mud.

17. A method as claimed in any one of claims 1 to 8, substantially as described with reference to the drawings.

18. Apparatus as claimed in any one of claims 9 to 16, substantially as described with reference to the drawings.

CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A system, comprising:

a differential pressure flow meter connected in a pipe; and

a density meter having an inlet tapped off the pipe and an outlet not positioned in the differential pressure flow meter;

wherein, in use, measurements of:

pressure differential and flow rate of a fluid flowing through the differential pressure flow meter; and

density and flow rate of the fluid flowing through the density meter,

are used to directly calculate one or both of mass flow rate or density flow rate of the fluid through the pipe.

2. The system of claim 1, further comprising a processor configured to receive the measurements and perform the calculation.

3. The system of claim 1 or 2, wherein the inlet of the density meter is tapped off the pipe upstream or downstream of the differential pressure flow meter.

4. The system of claim any preceding claim, wherein the differential pressure flow meter is a venturi meter or a wedge meter.

5. The system of any preceding claim, wherein the density meter is a Coriolis meter.

6. The system of any preceding claim, wherein the fluid is a slurry.

7. The system of claim 6, wherein the slurry is a drilling mud.

8. A method, comprising measuring flow of a fluid through a pipe using the system of any preceding claim.