CLAIMS

1. An airborne molecular contamination (AMC) monitoring apparatus comprising:

a manifold including:

an inlet tube adapted to be fluidly coupled a plurality of individual sampling tubes in a sampling tube bus, wherein each individual sampling tube is fluidly coupled to the inlet tube by a three-way valve,

a buffer tank fluidly coupled to the inlet tube via a three-way valve, and

a plurality of outlet tubes, each outlet tube fluidly coupled to the buffer tank and each outlet tube being fluidly coupled to an analyzer via a three-way valve,

wherein the three-way valves that fluidly couple the individual sampling tubes to the inlet tube, the three-way valve that fluidly couples the inlet tube to the buffer tank, and the three-way valves that fluidly couple the outlet tubes to the analyzer, can be configured so that the manifold can be flushed out;

one or more analyzers, each fluidly coupled to one of the one or more outlets of the manifold to analyze fluid drawn into the manifold through one or more of the plurality of individual sampling tubes; and

a control and communication system coupled to the one or more analyzers.

2. The AMC monitoring apparatus of claim 1 wherein each individual sampling tube is coupled a chamber of a process equipment station.

3. The AMC monitoring apparatus of claim 1 wherein the one or more sensors can include an individual or total volatile organic compounds (VOC) detector, an acid compound detector, a base compound detector, a sulfide compound detector, an amine compound detector, an air particle or aerosol count detector, a humidity detector, a temperature detector, a chemical coolant detector, an anion detector, a cation detector, a metal ion detector, or a doping ion detector.

4. The AMC monitoring apparatus of claim 1 wherein the manifold further comprises a clean air inflow and a clean air outflow coupled to the buffer tank to flush out the interior of the buffer tank.

5. The AMC monitoring apparatus of claim 4 wherein the manifold further comprises a pump fluidly coupled to the interior of the buffer tank.

6. The AMC monitoring apparatus of claim 5, further comprising one or more analyzers coupled to the inlet tube upstream of the three-way valve that couples the inlet tube to the buffer tank.

7. The AMC monitoring apparatus of claim 6 wherein the one or more analyzers coupled to the inlet tube upstream of the three-way valve include a temperature analyzer or a humidity analyzer.

8. The AMC monitoring apparatus of claim 1, further comprising a pump fluidly coupled to the three-way valve that couples the inlet tube to the buffer tank.