Claims

1. A system comprising:

one or more effluent flow paths to fluidically connect with a flow cell through which a plurality of reagents is to be pumped during a genetic sequencing operation, wherein the one or more effluent paths are to receive used reagents from the flow cell;

one or more pumps to pump the used reagents through the one or more effluent flow paths;

a used reagent selector valve to receive used reagents from the one or more pumps via an effluent line and controllable to select one of a plurality of disposal paths for the used reagents;

control circuitry operatively coupled to the used reagent selector valve, the control circuitry having one or more processors and a memory to store machine-executable instructions which, upon being executed by the one or more processors, control the one or more processors to cause the used reagent selector valve to select a desired one of the disposal paths depending upon which used reagent is being pumped through the one or more effluent paths; and

a flow meter that, in operation, is to detect a flow state of used reagents and provide flow data to the control circuitry regarding the flow of the used reagents, wherein the flow meter is fluidically coupled to one of the disposal paths, wherein the memory is to store further machine-executable instructions which, upon being executed by the one or more processors, further control the one or more processors to determine that the used reagent is not flowing through the desired disposal path based on the detected flow state and to provide a notification based on the determination that the used reagent is not flowing through the desired disposal path.

2. The system of claim 1, wherein a first disposal path of the disposal paths conveys more used reagent than a second disposal path of the disposal paths during the sequencing operation and wherein the flow meter is coupled to the first disposal path.

3. The system of claim 1, wherein the memory is to store further machine-executable instructions which, upon being executed by the one or more processors, further control the one or more processors to control the used reagent selector valve based upon a prescribed sequencing protocol for a genetic sequencer.

4. The system of claim 3, further comprising at least one valve to select a reagent and a reagent flow path, and wherein the memory is to store further machine-executable instructions which, upon being executed by the one or more processors, further control the one or more processors to control the at least one valve and the used reagent selector valve based upon the prescribed sequencing protocol.

5. The system of claim 4, wherein the one or more pumps include a reagent pump fluidically interposed between the reagent flow path and the effluent line.

6. The system of claim 1, further comprising a first used reagent vessel to receive used reagent from a first disposal path of the disposal paths and a second used reagent vessel to receive used reagent from a second disposal path of the disposal paths.

7. The system of claim 1, wherein a first used reagent vessel is to direct fluid therein to be directed away from an opening of the first used reagent vessel when the fluid is moved during removal or transport of the first used reagent vessel.

8. A system comprising:

a flow cell through which a plurality of reagents is pumped during a genetic sequencing operation to produce used reagents;

at least one reagent selector valve to select a reagent and a reagent flow path from a plurality of reagent flow paths, at least one of the reagent flow paths passing through the flow cell;

an effluent line that, in operation, is to conduct used reagent;

a used reagent selector valve to receive used reagent from the effluent line and controllable to select one of a plurality of disposal paths for the used reagent;

control circuitry operatively coupled to the at least one reagent selector valve and to the used reagent selector valve, the control circuitry having one or more processors and a memory to store machine-executable instructions which, upon being executed by the one or more processors, control the one or more processors to control the at least one reagent selector valve and the used reagent selector valve based upon a prescribed sequencing protocol for the genetic sequencing operation; and

a flow meter that, in operation, is to detect a flow state of the reagents and provide flow data to the control circuitry, wherein the flow meter is coupled to one of the disposal paths, wherein the memory is to store further machine-executable instructions which, upon being executed by the one or more processors, further control the one or more processors to determine that the reagents are not flowing through the selected disposal path based on the detected flow state and to provide a notification based on the determination that the used reagent is not flowing through the selected disposal path.

9. The system of claim 8, wherein the memory is to store further machine-executable instructions which, upon being executed by the one or more processors, further control the one or more processors to select a desired one of the disposal paths depending upon which reagent is being pumped though the flow cell.

10. The system of claim 8, wherein a first disposal path of the disposal paths conveys more used reagent than a second disposal path of the disposal paths during the sequencing operation, and wherein the flow meter is fluidically coupled to the first disposal path.

11. A method comprising:

performing a genetic sequencing operation by pumping, with one or more pumps, a plurality of reagents through a flow cell to produce used reagents, wherein there are one or more effluent paths that fluidically connect with the flow cell, wherein the one or more effluent paths receive the used reagents from the flow cell;

during the genetic sequencing operation, controlling, with control circuitry having one or more processors and a memory, at least one reagent selector valve to select desired reagents to be pumped through the flow cell in accordance with a protocol for the genetic sequencing operation;

during the genetic sequencing operation, controlling, with the control circuitry, a used reagent selector valve to select one of a plurality of disposal paths for the used reagents after the used reagents exit the flow cell via an effluent line, the controlling of the used reagent selector valve using the protocol for the genetic sequencing operation;

detecting a flow state through at least one of the disposal paths to verify that used reagents are flowing through the selected disposal path, wherein the flow state is detected by a flow meter fluidically coupled to one of the disposal paths;

determining that the used reagents are not flowing through the selected disposal path based on the detected flow state; and

providing a notification based on the determination that the used reagents are not flowing through the selected disposal path.

12. The method of claim 11, wherein a first disposal path of the disposal paths conveys more used reagent than a second disposal path of the disposal paths during the sequencing operation, and wherein the flow meter is fluidically coupled to the first disposal path.

13. The method of claim 11, further comprising collecting the used reagents in at least two different vessels, each disposal vessel positioned to receive used reagents from a different disposal path.

14. The method of claim 11, wherein the flow meter is fluidically coupled to a given one of the disposal paths other than the selected disposal path and wherein the flow state comprises flow through the given one of the disposal paths.

15. The method of claim 11, wherein the flow meter is fluidically coupled to the selected disposal path and wherein the flow state comprises no flow through the selected disposal path.

16. The system of claim 1, wherein the flow meter is fluidically coupled to a given one of the disposal paths other than the desired disposal path and wherein the flow state comprises flow through the given one of the disposal paths.

17. The system of claim 1, wherein the flow meter is fluidically coupled to the desired disposal path and wherein the flow state comprises no flow through the desired disposal path.

18. The system of claim 8, wherein the flow meter is fluidically coupled to a given one of the disposal paths other than the selected disposal path and wherein the flow state comprises flow through the given one of the disposal paths.

19. The system of claim 8, wherein the flow meter is fluidically coupled to the selected disposal path and wherein the flow state comprises no flow through the selected disposal path.