# CLAIMS

*What is claimed is:*

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 effluent paths are to receive used reagents from the flow cell;

one or more pumps to pump the used reagents through the 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; and

control circuitry operatively coupled to the used reagent selector valve, the control circuity having one or more processors and a memory to store machine-executable instructions which, when 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 effluent paths.

2. The system of claim 1, further comprising a flow meter that, in operation, is to detect flow of used reagents and provide flow data regarding the flow of the used reagents to the control circuitry.

3. The system of claim 2, wherein the flow meter is fluidically coupled to one of the disposal paths, and wherein the memory is to store further machine-executable instructions which, when executed by the one or more processors, further control the one or more processors to determine whether the used reagent is flowing through the desired flow path based upon feedback from the flow meter.

5. The system of claim 3, 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.

6. The system of claim 1, wherein the memory is to store further machine-executable instructions which, when 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.

7. The system of claim 6, 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, when 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.

8. The system of claim 7, further comprising a reagent pump fluidically interposed between the reagent flow path and the effluent line.

9. 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 reagent vessel to receive used reagent from a second disposal path of the disposal paths.

10. The system of claim 1, wherein the 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.

11. 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; and

control circuitry operatively coupled to the at least one reagent selector valve and to the used reagent selector valve, the control circuity having one or more processors and a memory to store machine-executable instructions which, when 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.

12. The system of claim 11, wherein the memory is to store further machine-executable instructions which, when 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.

13. The system of claim 11, further comprising a flow meter that, in operation, is to detect flow of the reagents and provide flow data to the control circuitry.

14. The system of claim 13, wherein the flow meter is coupled to one of the disposal paths, and wherein the memory is to store further machine-executable instructions which, when executed by the one or more processors, further control the one or more processors to determine whether the reagents are flowing through the desired flow path based upon feedback from the flow meter.

15. The system of claim 14, 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.

16. A method comprising:

performing a genetic sequencing operation by pumping a plurality of reagents through a flow cell to produce used reagents;

during the genetic sequencing operation, controlling at least one reagent selector valve to select desired reagents to be pumped thought the flow cell in accordance with a protocol for the genetic sequencing operation; and

during the genetic sequencing operation, controlling 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, the controlling of the used reagent selector valve using the protocol for the genetic sequencing operation.

17. The method of claim 16, further comprising detecting flow through at least one of the disposal paths to verify that used reagents are flowing through the selected disposal path.

18. The method of claim 17, wherein the flow is detected by a flow meter fluidically coupled to one of the disposal paths.

19. The method of claim 18, 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.

20. The method of claim 16, 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.