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- (54) **Title:** SHARED EQUATION OF STATE CHARACTERIZATION OF MULTIPLE FLUIDS

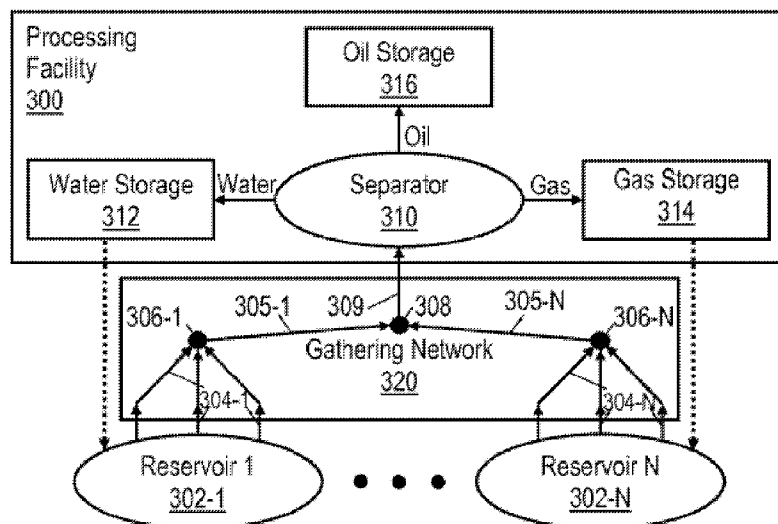


FIG. 3

(57) **Abstract:** System and methods of modeling fluids in a simulation of fluid production in a multi-reservoir system with a common surface network are provided. Pressure-volume-temperature (PVT) data is determined for fluids in each of a plurality of reservoirs coupled to the common surface network. A shared equation of state (EOS) characterization representing each of the fluids across the plurality of reservoirs is generated based on the corresponding PVT data. Data representing properties of the fluids in each reservoir is calculated based on the shared EOS characterization of the fluids. When the calculated data is determined not to match the PVT data associated with the fluids in each reservoir, the shared EOS characterization is adjusted based on a difference between the calculated data and the PVT data.



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