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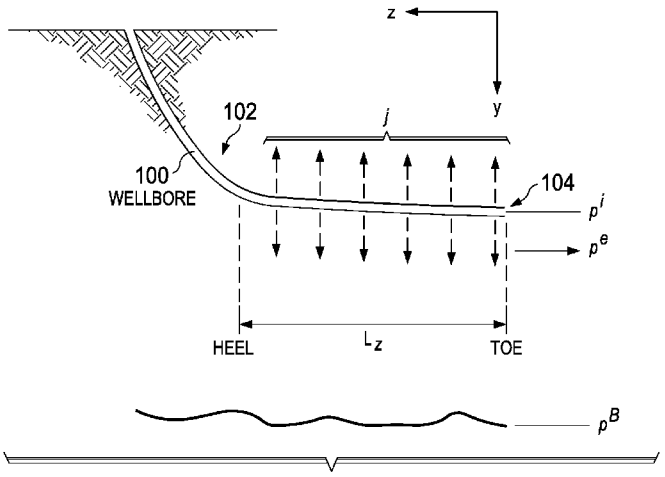
(54) Title: OPTIMIZING FLOW CONTROL DEVICE PROPERTIES FOR A LIQUID INJECTION WELL USING A COUPLED WELLBORE-RESERVOIR MODEL



(57) Abstract: The disclosed embodiments include a method, apparatus, and computer program product for determining optimal flow control device (FCD) properties that would yield to a prescribed shape of the injection flow rate profile. For example, in one embodiment, a computer implemented method is configured to perform the steps of: determining a reference location along a production length of the injection well; determining a reference value equal to the injection flow rate profile at the reference location along the production length of the injection well; defining a target injection profile using the reference value; determining a pressure distribution along the production length of the injection well based on the target injection profile; determining a FCD distribution profile using the target injection profile and the pressure distribution; and determining FCD properties that yields the target injection profile based on the FCD distribution profile.