STEAMFLOODING

Recovery by steamflooding is commonly used in heavy-oil reservoirs containing oil whose high viscosity is a limiting factor for achieving commercial oil-producing rates. It has also been considered, however, as a method for recovering additional light oil.

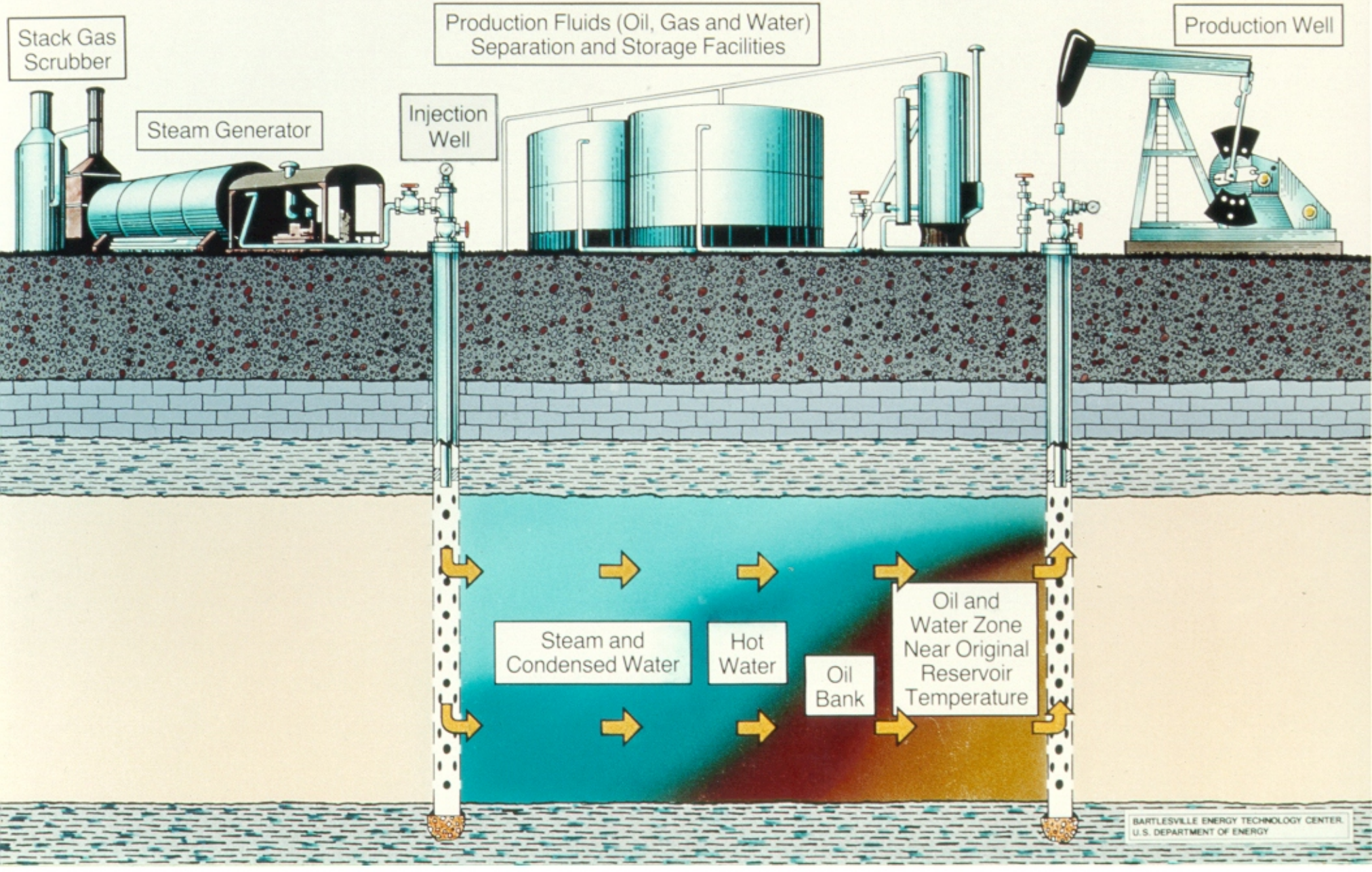
High-temperature steam is continuously injected into a reservoir. As the steam loses heat to the formation, it condenses into hot water, which, coupled with the continuous supply of steam behind it, provides the drive to move the oil to production wells.

As the formation heats, oil recovery is increased by:

1. The heated oil becomes less viscous, making it easier to move through the formation toward production wells.
2. Expansion or swelling of the oil aids in releasing it from the reservoir rock.
3. Lighter fractions of the oil tend to vaporize, and as they move ahead into the cooler formation ahead of the steam they condense and form a solvent or miscible bank.
4. Finally, the condensed steam cools as it moves through the reservoir and results in what amounts to an ordinary waterflood ahead of the heated zone.

An added bonus from the use of steam in both steamflooding and cyclic steam stimulation is the flushing of liners and casing perforations, as well as the reduction of deposits that may build up in the wells. Possible flow restrictions to oil production through the wells are thus reduced.

STEAM FLOODING

Heat, from steam injected into a heavy-oil reservoir, thins the oil making it easier for the steam to push the oil through the formation toward production wells.

Heat reduces viscosity of oil and increases its mobility.