



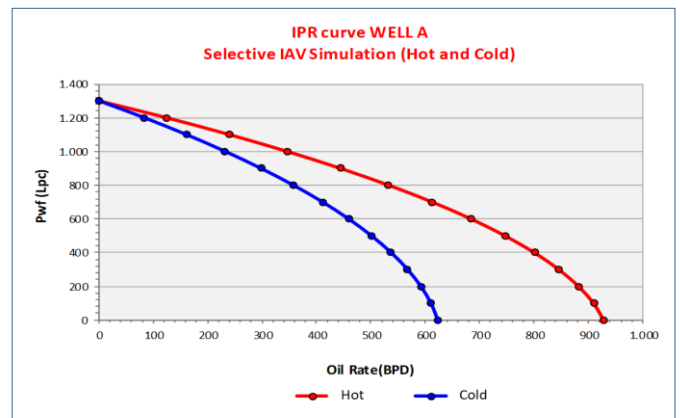
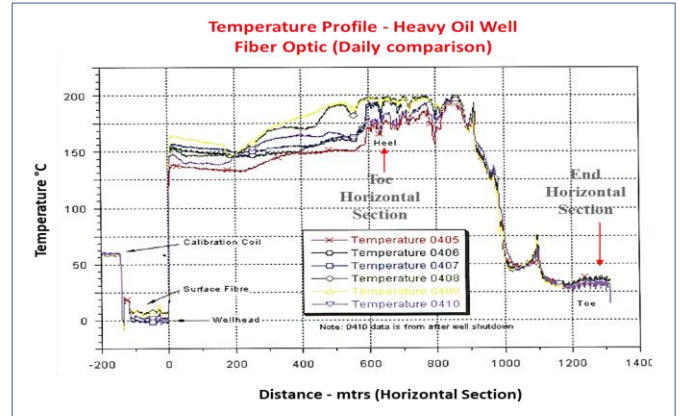
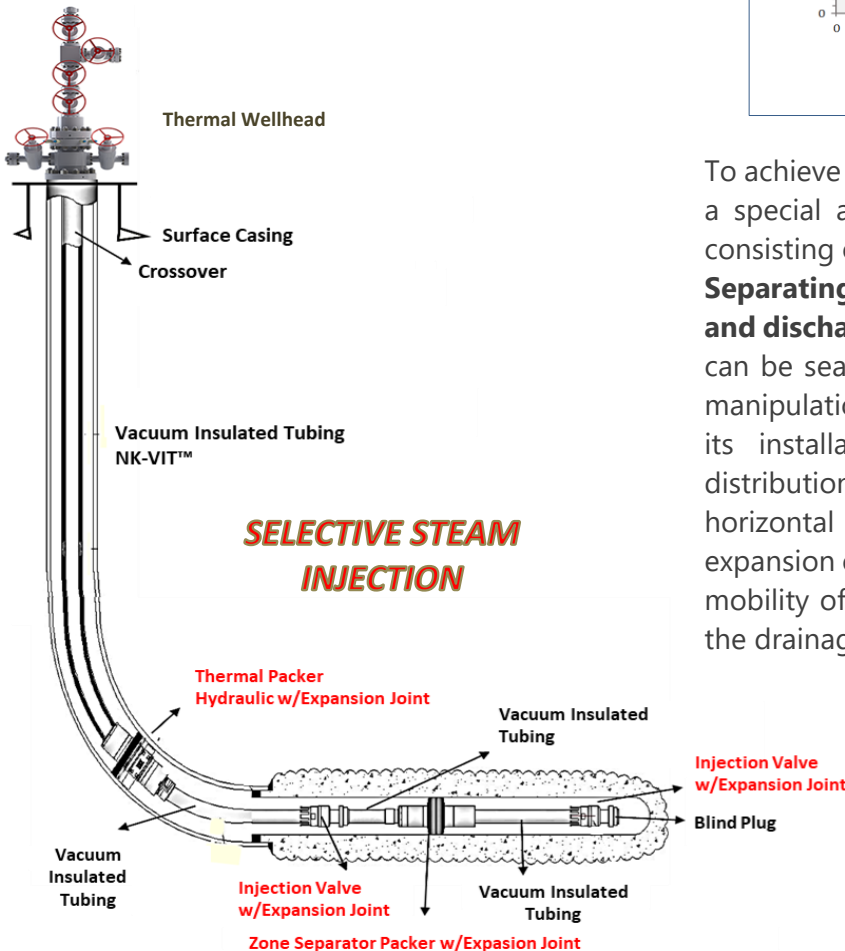
IMPROVING THE DISPLACEMENT OF THE STEAM CHAMBER THROUGH THE APPLICATION OF SEQUENTIAL THERMAL COMPLETION

OPTIMIZATION OF THE STEAM INJECTION SCHEMES

The key to achieving an effective thermal stimulation in wells with horizontal geometry depends largely on an optimal distribution of the steam chamber along the section of net oil sand; therefore, it is very important to carry out a detailed analysis of the petrophysical properties of the reservoir or study area; In this way, the optimum steam injection points can be determined in the areas with the best prospectivity.

Previous studies of temperature monitoring in horizontal wells with steam injection in heavy oil reservoirs have shown that heat is not distributed uniformly throughout the producing section; In this sense, it is vitally important to install the appropriate equipment and tools in the wells to be stimulated to guarantee an efficient steam chamber sweep and thus improve the productivity of the reservoir.

SEQUENTIAL COMPLETION DESIGN (SELECTIVE):



To achieve this, **NAKASAWA** has designed and tested a special and suitable completion for this purpose, consisting of a system of **Thermal Packers, and Zone Separating Packers provided with expansion joints and discharge points or Steam Injection Valves** that can be seated in the horizontal section, by hydraulic manipulation in a single running or mechanically prior its installation. With this new design, a better distribution of the volume of steam injected along the horizontal section is achieved, translating into the expansion of the thermal chamber, resulting in greater mobility of the crude oil from the formation towards the drainage radius of the well.

