

> SAFETY MEASURES IN EOR PROCESSES



By: Alina Pérez Mata
 Process and HSE Leader
 Nakasawa Mining & Energy

Steam injection into oil wells is an enhanced recovery method generally used in depleted heavy crude oil reservoirs, where viscosity is the limiting factor in achieving a commercial production rate. This method consists of injecting steam for a set period into a reservoir through an injection well, heating the oil and reducing its viscosity, thus achieving an increase in oil production. However, this method involves certain risks and challenges for the safety of workers and the environment, so a series of preventive and corrective measures must be adopted to avoid accidents, damage or losses. Some of these measures are::

- Use appropriate personal protective equipment to avoid burns, cuts, blows or inhalation of vapors. This equipment includes protective gloves against mechanical and thermal risks, protective glasses against particle projection, safety footwear and respiratory protection (depending on the work phase).
- Follow the operation and maintenance rules of the injection machine, as well as the manufacturer's instructions. These rules include checking the condition of the hoses, valves, connections and accessories before starting the steam injection, not exceeding the maximum working pressure of the machine and the injection system, not approaching or touching the hot parts of the machine or of the injection system, and do not manipulate or disconnect the elements of the injection system when they are subject to pressure or temperature.
- Monitor the behavior of the reservoir and the injection system, using sensors, meters, cameras and other devices, to detect and correct possible anomalies, leaks, obstructions, fractures or failures.
- Train and sensitize personnel on the risks and safety measures associated with the continuous steam injection process, as well as on emergency and contingency protocols in case of incidents.

These safety measures help guarantee the physical integrity of workers, the efficiency and profitability of the process, and the preservation of the environment.

