

## STEAM INJECTION FOR ENHANCED OIL RECOVERY

*Mineral insulated cable keeps superheated steam hot*

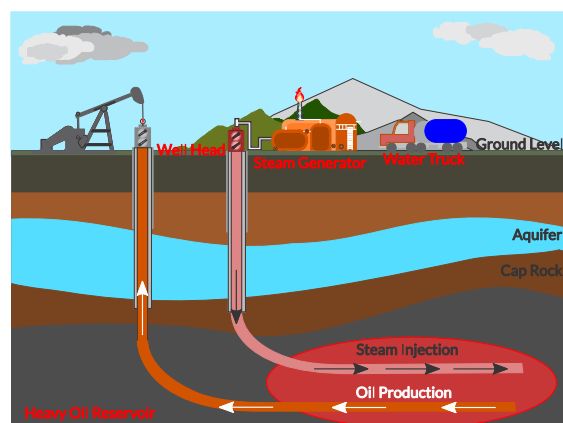
### Application

Oil companies drill and pump wells to bring up crude oil that flows easily through the piping. The potential for peak production occurs early in the well's life cycle and will decrease over time. An enhanced oil recovery (EOR) method may be used to thermally stimulate the remaining reserves. Cyclical Steam Stimulation, utilizes steam injection to decrease oil viscosity, and melt paraffins and asphaltenes to effectively extract remaining oil reservoirs. This method enhances oil recovery, and requires super-heated steam which must be 572°F to 644°F (300°C to 340°C) for injection. Energy-efficient steam generators produce super-heated steam which must retain its temperature as it moves from the generators to the injection locations. A decrease in temperature will occur in the steam transmission pipes even if they are insulated. If this happens, the cyclical steam stimulation will not be as effective, leading to extreme inefficiency and avoidable loss of revenue.

### Solution

Mineral Insulated (MI) Heating Cable can be used for applications requiring temperatures up to 1,832°F (1,000°C). Sheath materials can be 321 stainless steel, Alloy 800/825 or Inconel 600, making the heater waterproof with a high resistance to corrosion. The cable can be bent to fit almost any shaped object requiring heat such as the pipes, tees, elbows, and valves on this steam injection system.

Custom engineered cloth insulators manufactured with beta cloth and high-temperature fiberglass lock in the heat from the cable to maximize efficiency. They are rated for temperatures up to 900°F (482°C). Additionally, they feature high-temp hook and loop closures for repeated installation and removal. An MPC2 Multi-Point Temperature Control Panel will effectively control the heating cables' temperatures. This controller allows the operator to see the current and setpoint temperatures of each heating zone and has excellent accuracy. MPC2 controllers can simultaneously control multiple zones and interface with a process control system when required.



### Industries

Chemical Processing/Extractions  
Energy/Power Generation  
Gas & Oil

### Types of Users

Facility Planners	Station Managers
Industrial/Process Engineers	Piping Contractors



**MI Mineral Insulated Heating Cable**



**MPC2 Temperature Control Panel**