



Sweet Solutions.™



MERICHEM COMPANY



LO-CAT[®] II PROCESS CONTROLS H₂S EMISSIONS AT GEOTHERMAL PLANTS

The LO-CAT[®] II process is used to control H₂S emissions and reduce odors at geothermal power plants.

Geothermal steam, considered to be a clean and environmentally friendly source of energy, is produced when water seeps into high temperature, high pressure formations below the earth's surface. The steam is brought to the surface through production wells and then expanded through a turbine to produce electricity. Coming out of the turbine is the condensed steam and any non-condensable gases (NCG) associated with the steam. The condensed steam is usually pumped back into the underground formation.

The NCG is mostly carbon dioxide (CO₂) but, may contain up to 6% hydrogen sulfide (H₂S). If the H₂S

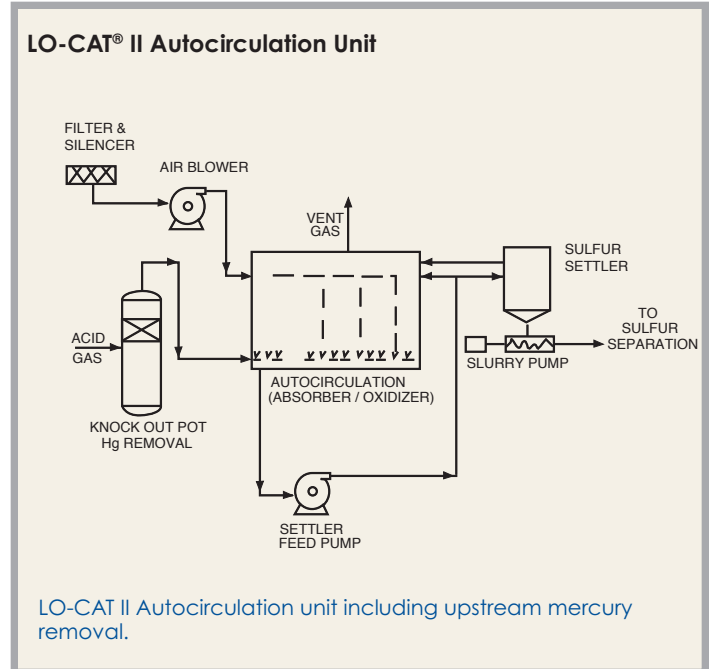
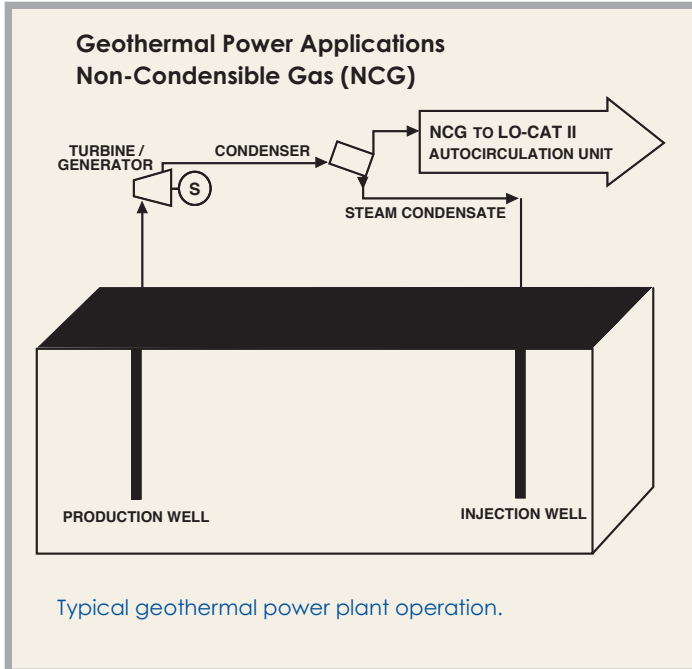
concentration is very low, the NCG is usually vented to the atmosphere through the cooling tower. However, both the low odor threshold of H₂S and the current environmental laws strictly limit the amount of H₂S that may be vented into the atmosphere.

The LO-CAT II system provided by Merichem is the ideal desulfurization process for geothermal NCG. The system features H₂S removal efficiencies over 99.9%, excellent performance in turndown conditions for both H₂S concentration and NCG flowrate, and easy operations requiring only limited operator attention.

LO-CAT[®] II PROCESS

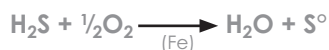
CONTROLS H₂S EMISSIONS AT GEOTHERMAL POWER PLANTS

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The LO-CAT[®] II process offers a low-cost, high-efficiency, flexible method for removing H₂S from geothermal non-condensable gases achieving 99.9+% H₂S removal efficiency.

The LO-CAT II process converts H₂S to innocuous, elemental sulfur using a patented, dual chelated iron catalyst which is environmentally safe. The overall process reaction is:



Oxygen used in the process comes from air which is bubbled through the catalyst solution. Because the chelated iron catalyst is not consumed during the reaction, only modest amounts of catalyst are added to the process to replace mechanical losses. A small caustic addition is required to maintain the catalyst solution in the mildly alkaline pH range. Also, additional chelates are added to replace chelates that degrade over time.

Flexibility is especially important at multiple well sites where production from individual wells is intermittent resulting in a constantly fluctuating NCG flowrate and composition. Also, the NCG composition from most geothermal formations will change over the life of the site.

The highly flexible, patented LO-CAT II Autocirculation design handles fluctuations in both H₂S concentrations and NCG flowrate with little or no operator attention.

Only the LO-CAT II process offers geothermal steam producers a desulfurization process with high efficiency, economical operating costs, and easy operations using an environmentally safe scrubbing solution.



The LO-CAT II system converts H₂S to a harmless sulfur cake.