NOTICE CONCERNING COPYRIGHT RESTRICTIONS

Progress Report
Hydrogen Sulfide Emission Abatement
For CFE Geothermal Plants

B. Terrazas
CFE

G. Sharp
Consultant

Introduction

One of the main activities that the Comision Federal De Electricidad is performing in the area of environmental protection is the monitoring of atmospheric emissions of hydrogen sulfide.

Emission control is of great importance in the operation of both the field and power plants at the Cerro Prieto Geothermal Project. This report briefly describes some of the more important activities that the Comision Federal De Electricidad is performing in the area of non-condensable gas emissions.

Non-Condensable Gas Emission Points

Non-Condensable gases are contained in the geothermal steam, in significant quantities, and are emitted from several sources, including: well drilling operations, steam discharge from silencers, steam lines, and at the power plants, from the cooling towers and non-condensable gas stacks.

The gas content and composition for each well has been determined by sampling and chemical analysis on a periodic basis starting with initial well operation. Gas content and composition vary according to the well location within the field.

The major gases that are found in the steam at Cerro Prieto are: carbon dioxide, hydrogen sulfide, ammonia and methane. Hydrogen sulfide becomes the most important because of its characteristic odor, even at very low concentrations.

Ambient Hydrogen Sulfide Monitoring

At Cerro Prieto, ground level hydrogen sulfide concentrations have been measured using sensitive instrumentation. These measurements have allowed the use of several atmospheric dispersion models to predict hydrogen sulfide concentrations throughout the field and surrounding villages. The results of this effort obtained to date, show that the hydrogen sulfide concentrations are acceptable.

The height of the non-condensable gas stack at Cerro Prieto Tres Power Plant was increased to 70 meters to enhance the atmospheric dispersion of hydrogen sulfide. Measurements taken before and after increasing the stack height indicated a decrease by a factor of ten within the field.

Plans For 1995

Continue the measurement of non-condensable gases in each operating well.

Installation and operation of three additional hydrogen sulfide monitors.

Construction and operation of a pipeline at Cerro Prieto Uno to discharge the non-condensable gases from the cooling tower exhaust, and to evaluate the predictions of dispersion modeling.

Study and evaluate various hydrogen sulfide emission abatement technologies used at other geothermal power plants for potential use by CFE.