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MONTHLY PROGRESS REPORT FOR MAY. ENVIRONMENTAL EFFECTS AND CONTROLS FOR COAL-WATER SYSTEMS

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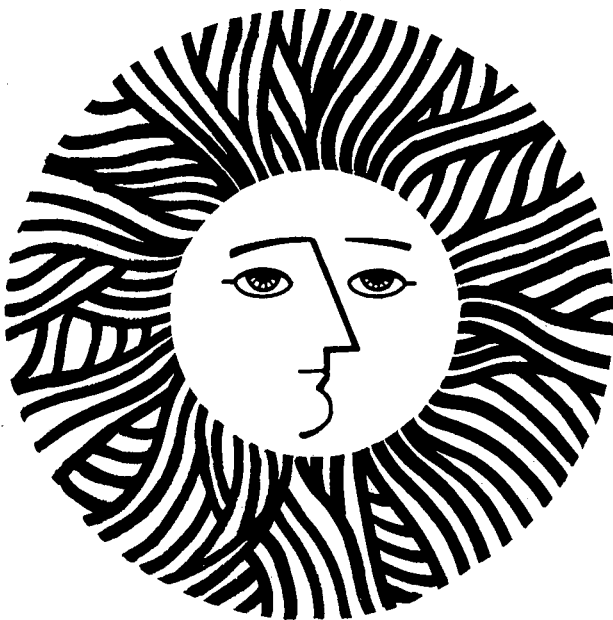
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June 22, 1981

TO: Charles Grua
FROM: Amos Newton
RE: Monthly Progress Report for May
Environmental Effects and Controls for Coal-Water Systems
LBID-409

GC/MS Operations

Much of our time this past month was taken up with two failures in our Finnigan Model 4023 GC/MS system. The Finnigan service personnel were of little help in either of these. First was a data system failure characterized by the data system performing an operation completely unrelated to the command entered. This was finally traced to a cold solder connection in the 70 wire cable from the disk control board to the disk drives. The second failure followed immediately and was characterized by a sudden crash of the computer during data acquisition. Over a period of two weeks this got progressively worse until for two days nothing could be done because the computer could not be booted. The third day of this, when the disk drives were turned on, the computer accepted a boot and has operated normally since. We, nor Finnigan personnel, have any explanation for the failure or the recovery.

Such episodes are a price in time and frustration paid for the use of a complex and sensitive instrument.

Coal Slurry Water

The laboratory has obtained from the Mohave Generation Station some coal slurry water, centrifuge water (called centrate), and underflow and overflow samples from the clariflocculator. The centrate and the overflow are of interest in checking for the presence of organic impurities and comparison of our results on slurry water from Black Mesa Coal. The amount of water on hand from the Mohave Generating Station is limited.

Humic Acids

At the Mass Spectrometry Society Meeting in Minneapolis, May 24-29, 1981, some information was obtained on the characterization of humic and fulvic acids

in natural water by GC/MS scanning of the permanganate oxidation products. These are phenols and carboxylic acids which were extracted from the oxidized solution. The authors did not methylate the products which would have given a more consistent yield of the extract. This process is currently under investigation.

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