UC-91
LBID-262 c. 1

Lawrence Berkeley Laboratory
UNIVERSITY OF CALIFORNIA

ENERGY & ENVIRONMENT DIVISION

For Reference

Not to be taken from this room

RECEIVED
LAWRENCE
BERKELEY LABORATORY

OCT 22 1980

LIBRARY AND
DOCUMENTS SECTION

LBID-262 c.1

DISCLAIMER

This document was prepared as an account of work sponsored by the United States Government. While this document is believed to contain correct information, neither the United States Government nor any agency thereof, nor the Regents of the University of California, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by its trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or the Regents of the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof or the Regents of the University of California.

Co # 6426

LAWRENCE BERKELEY LABORATORY
Room: 128 Bldg.: 70 Ext.: 6241

August 25, 1980

TO: Brian Harney and Art Hartstein

FROM: Phyllis Fox and Richard Fish

RE: July Monthly Progress Report
The Partitioning of Major, Minor, and Trace Elements
during Simulated In-Situ Oil Shale Retorting
LBID-262

SPECIATION OF INORGANIC AND ORGANOMETALLIC COMPOUNDS IN OIL SHALE PROCESS WATERS

We are presently studying the origin of previously identified As species -- arsenate and methyl and phenylarsonic acids. Anvil Points oil shale was ground and extracted with ammonium bicarbonate. Shale oils from the LLL retorts were also extracted with ammonium bicarbonate. These samples are presently being analyzed by HPLC-GFAA to identify As species.

IDENTIFICATION OF POTENTIAL ORGANIC COMPOUNDS AS LIGANDS OF METALS IN OIL SHALE PROCESS WATERS

Last month we reported that butylation of Occidental's Heater-Treater water provided the butyl ester of acetic acid. We have now evaluated the data more extensively and have found that C_2 to C_4 monocarboxylic acids, which were not previously observed, are present in that process water.

This finding suggests that these lower molecular weight monocarboxylic acids may be present in the other process waters which we previously studied. We are presently verifying this hypothesis.

GEOKINETICS CORE STUDIES

A program has been initiated to study trace element distribution in raw and spent shale cores from Geokinetics Retort No. 16. Major, minor, and trace elements will be measured in 160 one-foot spent shale composite samples and in 40 one-foot raw shale composite samples. The geochemical origin of As, Se, Hg, and Cd will be investigated, and leaching studies will be conducted on select samples and the leachate characterized for As species.

This report was done with support from the Department of Energy. Any conclusions or opinions expressed in this report represent solely those of the author(s) and not necessarily those of The Regents of the University of California, the Lawrence Berkeley Laboratory or the Department of Energy.

Reference to a company or product name does not imply approval or recommendation of the product by the University of California or the U.S. Department of Energy to the exclusion of others that may be suitable.

TECHNICAL INFORMATION DEPARTMENT
LAWRENCE BERKELEY LABORATORY
UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA 94720