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FOURTH QUARTERLY PROGRESS REPORT

(1 July - 30 September 1974)

APPLICABILITY OF SKYLAB
REMOTE SENSING FOR DETECTION AND
MONITORING OF SURFACE MINING ACTIVITIES

SKYLAB EREP INVESTIGATION 9669

TECHNICAL MONITOR: R.E. Joosten

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1.0 INTRODUCTION

The objective of this investigation is to evaluate EREP imagery as a means of detecting and monitoring strip mines, their environmental effects, and reclamation activities. EREP S-190A and S-190B imagery of a calibration test area will be analyzed, and some S-192 thermal imagery during a night time pass is desired in hopes of detecting acid waste waters whose temperatures might exceed those of the surrounding environment.

Initially, the investigation will consist of a census of active and inactive strip mines along with estimates of disturbed and reclaimed acreage. Notable damage to the environment will also be included.

Because of weather conditions and cloud cover during Skylab overflights, the primary test site has been changed as of October 14, 1974, to encompass portions of Kentucky and Tennessee, extending from latitude $36^{\circ}00'N$ to $37^{\circ}30'N$ and longitude $86^{\circ}00'W$ to $88^{\circ}30'W$.

2.0 PROGRESS

2.1 Visitation to Skylab Conference at L.B.J. Space Center

Mr. Pennewell attended the July 16, 17, and 18 conference at L.B. Johnson Space Center. The lack of Skylab data over our original calibration area due to weather and other conditions was discussed with Mr. R. Joosten and other responsible project personnel. A comprehensive review and evaluation of Skylab data acquired in and adjacent to secondary test site areas was accomplished. It was found that the test site area had to be modified to encompass areas of Tennessee and Kentucky.

2.2 Contract and Task Modifications

It was concluded that the test site area be modified which would entail additional efforts to acquire ground truth data and research state of Kentucky and Tennessee distribution of mines and reclaimed regions. To accomplish the extra efforts both a time extension to the task and additional funding were requested and granted.

3.0 PROBLEMS

No significant problems have occurred during this period.

4.0 PLANS

4.1 Planned Visitations to Tennessee and Kentucky

State personnel have been contacted in Kentucky and Tennessee to aid us in a visit to observe various types of mining and reclamation activities within our newly selected test site area. Full cooperation has been extended by these agencies to aid our project.

4.2 Transfer Data from Films

Data analysis will be initiated to extract surface mining and related activities from Skylab film and generate data displays useful for interpretation and evaluation. This information will be correlated with surface observations and other information gleaned from the respective state agencies.