COMPUTER MICRODENSITOMETER (DRUM SCANNER) SYSTEM

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QUALITY DIVISION

APRIL - JUNE 1975

Normal Process Development
Endeavor No. 218

MASTER

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operated for the
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
under
U. S. GOVERNMENT Contract DA-11-173-AMC-487(A)

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DISCUSSION

The original justification for this system no longer exists. Improvements in the lens manufacturing process have reduced rejects, specification requirements have loosened, and film reading techniques have changed. As a result inspection time for lens radiographs has been reduced by at least two-thirds. The drum scanner system could not compete from a time standpoint with the present film reading system.

The software for the film reading project was divided into four parts: interface, master negative preparation, test to master comparison, and reporting section. Each part has been written and tested. The overriding problem to successful lens film inspection is accurate test film to master registration. Alignment would not be a real problem if the lens radiograph did not see so many changes in film density. Because of the loss of the original justification, further work on resolving the registration problem is not considered feasible at this time. However, the system is considered a useful tool for other projects.

The software developed for the film reading system is general in nature. All subroutines for operation of the drum scanner are transferable to any applications program. Once hardware problems were resolved, this software proved to be very reliable. Routines for film comparisons can be used for any film that can be put on the scanner. As mentioned above, films with numerous density thresholds present a problem because of alignment inadequacies. A routine for reading and writing film densities is also available and is a useful tool for testing application programs and obtaining quantitative information for special studies.

CONCLUSIONS AND FUTURE WORK

Although the drum scanner system did not solve the original problems in reading lens radiographs, it has been and can continue to be useful as a research tool. It is still a new tool in image analysis and those involved in its use emphasize the complexity of its development. It continues to be one of the few sources for fast quantitative film data. Some work has been done on analyzing test fire records and eccentricity problems. Little work has been done on these applications since 1974 because of other responsibilities. The eccentricity program is complete but not tested.

Lately considerable attention has been given to sharing the System 7 between the drum scanner and several gas chromatographs. This setup, if deemed feasible, would promote considerable use of the System 7 for production activities. At the same time use of the drum scanner could continue for special projects and quite possibly on production problems at a later date.