Excessive errors at either level resulted in an EA rejection. Error rates of 3 percent at the ED level and 2 percent at the EA level were allowed. Once the EA's and ED's passed the required tests at those levels, they were combined and subjected to a 1-percent tolerance error check at the county level. If the county grouping failed, then each EA having tolerance error of 1 percent or greater was repunched.

The quality check was applied to each EA individually. Each EA had to pass two tests to be accepted. One test was for keypunch errors and the second was for omission of segments containing data. Failure in either resulted in an unfavorable decision. The number of segments and the number of error segments in the sample were compared to acceptance tables. Based on this comparison, a favorable (accept) or an unfavorable (reject) decision was made concerning the operator and the cards punched for the EA. After an operator was qualified, separate tables were used for the operator and the EA's.

Sampling was performed at two levels--4 percent for qualified operators and 10 percent for all other phases. There were five basic and four supplemental phases for verification. The first four phases (training, productive training, qualifying, and qualified) made up the sequence required of the operators. There was also a disqualified phase for operators failing in the qualifying or qualified phase. The four supplemental phases (requalifying, reinstated, retraining, and change to productive training) were for correction of erroneous actions and for operators on extended leave. Once the operator reached the second phase (productive training), the computer controlled the status and indicated the changes in the phase of verification, with the exception of assignment to the supplemental phases.

The production and the corresponding verification data were transmitted to Washington daily by the Data Transmission System. Quality data and decisions were transmitted back to the operation on an overnight basis by the same method. Quality data consisted of two reports--an Operator Status Report and an EA Diary Report. The Operator Status Report showed clerical and computer changes in an operator's status. This was used by the punch unit to determine sampling rates and actions required for the operators. The EA Diary Report gave a summary of error conditions in rejected EA's. The Operator Quality Report, a summary of each operator's current and cumulative quality rating, was prepared by the computer on a weekly basis.

VERIFICATION OF DIARY CORRECTIONS

The clerks transcribed to Diary Correction Sheets the corrections which professional analysts had indicated on the A1 questionnaires, and posted the identification codes and computer-action codes. These data were then punched into cards for conversion to tape.

The purpose of the quality control program was to assure that the analyst's corrections to an A1 questionnaire were properly transcribed to the correction sheet. This was controlled by an independent 100-percent verification of the transcription. The

corrections were independently transcribed to a set of correction sheets, and this verification set was matched to the production set. The differences found during the match were reconciled and the errors corrected. Matching of the first 30-40 percent of the job was manual. For economy and speed, machines were used for matching the remainder of the transcriptions.

Table 6. QUALITY PHASES AND REQUIREMENTS

Quality assignment phase/status	Verification rate	Quality requirements
Training.....0	10%	A prescribed period of punching--around 5 days. Dummy questionnaries used in this phase only.
Productive training....1	10%	Automatic transfer to qualifying phase upon punching of 1,000 forms (A1's). EA's with less than 10-percent error accepted for processing.
Qualifying...2	10%	Three consecutive accept decisions within seven decisions to qualify. Operators failing to qualify were transferred to disqualified phase. Rejected EA's were repunched.
Qualified....3	4%	A maximum of two consecutive reject decisions was allowed. Operators failing to maintain this standard were transferred to disqualified phase. Rejected EA's were repunched.
Disqualified.4	10%	Three consecutive accept decisions within seven decisions. Only one disqualification was allowed. Operators were removed from the job if they failed to qualify in this phase or if a second disqualification was received. Rejected EA's were repunched.

For the manual match of the two sets of transcription sheets, matching on the sum of the check digits for each A1 correction sheet was required. Since omission of zeros would not be detected by the check-digit computation, two additional sums were obtained for each transcription sheet--the total number of data fields and the total number of ending zeros in the last data fields which contained nonzero digits. These three sums were independently obtained for each sheet in both sets and then matched. Control sheets and breaker sheets were similarly verified.

The machine match was performed with an IBM 056 verifying machine during the 100-percent verification of the data-punch operation. The cards punched from the original (production) transcription sheets were matched to the cards punched from the second (verification) transcription sheets. Consequently, the punch