



FIELD TEST
OF EMERGENCY DIESEL GENERATOR 103
WITH 13 x 12 CRANKSHAFT

Prepared for

SHOREHAM NUCLEAR POWER STATION
LONG ISLAND LIGHTING COMPANY

by

E. BERCEL

J. R. HALL

APRIL 1984

Approved by:

E. Bercel
Responsible Engineer
E. Bercel

J. R. Hall
Responsible Engineer
J. R. Hall

STONE & WEBSTER ENGINEERING CORPORATION

B1-1160037-1

8412170320 841001
PDR ADOCK 05000322
G PDR

mechanical variables and output power and the results of the variable speed test are illustrated in Figures B-1 through B-11. Figures B-12 through B-78 contain the time domain data of the mechanical variables, including the calculated principal stresses and transient phenomena. The time-domain records of the electrical variables are in the third group in Figures B-79 through B-86. Finally, the frequency domain plots are presented in the fourth group in Figures B-87 through B-96 for both mechanical and electrical variables. In each group the figure numbers are arranged in ascending order with generated power to assist the reader.

7.2.1 Strain Measurements

In comparison to the dynamic strain, the static component of the measured strain was small. Since the dynamic range of the instrumentation had to accommodate the total strain, the static strain components were in the bottom 5 percent of the total measurement range. Nevertheless, the procedure described in Section 6.1 enabled the measurement of those components to a satisfactory accuracy (about ± 5 percent). The values determined for the various load levels are given in Table B-1.

Measurements 5-3 and 7-1 represent the tensile components while 5-1 and 7-3 are the compressive strain components. The dynamic strain records are presented in the time domain only (Figures B-12 through B-18, B-24 through B-30, and B-37 through B-43). Each of those records represents 48 strain cycles averaged synchronously over a period of 12.8 seconds. To facilitate analysis, all records have been plotted to the same scale with a zero average and have been triggered at the same point in time. The time of the