

INSTRUMENTATION

TABLE 3.3-7

SEISMIC MONITORING INSTRUMENTATION

| <u>INSTRUMENTS AND SENSOR LOCATIONS</u>   | <u>MEASUREMENT RANGE</u>       | <u>MINIMUM INSTRUMENTS OPERABLE</u> |
|---|--------------------------------|-------------------------------------|
| 1. Triaxial Time-History Accelerographs System, including the following components: |                                |                                     |
| a. Reactor Building Foundation Mat Accelerometer                                    | 0.1 to 40 Hz<br>0.01 to 1.0g   | 1                                   |
| b. Reactor Building Ring Girder Accelerometer                                       | 0.1 to 40 Hz<br>0.01 to 1.0g   | 1                                   |
| c. Reactor Building Foundation Mat Trigger  | 1 to 10 Hz<br>0.005 to 0.02g   | 1*                                  |
| 2. Triaxial Peak Accelerographs<br>ACCELEROGRAPHS                                   |                                |                                     |
| a. Side of Steam Generator  | 0-32 Hz<br>-5g to +5g          | 1                                   |
| b. <del>Pressurizer Surge Line</del><br>ACCUMULATOR SAFETY INJECTION LINE           | 0-32 Hz<br>-5 to +5g           | 1                                   |
| c. RHR System Heat Exchanger  | 0-20 Hz<br>-2g to +2g          | 1                                   |
| 3. Triaxial Seismic Switches  |                                |                                     |
| a. Reactor Building Foundation Mat  | 0.1 to 30 Hz<br>0.01 to 0.25 g | 1*                                  |
| 4. Triaxial Response-Spectrum Recorders   |                                |                                     |
| a. Reactor Building Foundation Mat  | (1)                            | 1*                                  |
| b. Steam Generator Support  | (1)                            | 1                                   |
| c. Intermediate Bldg., Elev. 463'   | (1)                            | 1                                   |
| d. Auxiliary Bldg. Foundation   | (1)                            | 1                                   |

\* With control room indication and/or alarm.

(1) Range varies for the multiple elements of the instrument, i.e., 1.6g at 2 Hz, 10g at 5 Hz, 34g at 10 Hz, 12g at 16 Hz.

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TABLE 4.3-4

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| <u>INSTRUMENTS AND SENSOR LOCATIONS</u>                                      | <u>CHANNEL CHECK</u> | <u>CHANNEL CALIBRATION</u> | <u>ANALOG CHANNEL OPERATIONAL TEST</u> |
|--|----------------------|----------------------------|--|
| 1. Triaxial Time-History Accelerographs, including the following components: |                      |                            |  |
| a. Reactor Building Foundation Mat Accelerometer                             | M                    | R                          | SA                                     |
| b. Reactor Building Ring Girder Accelerometer                                | M                    | R                          | SA                                     |
| c. Reactor Building Foundation Mat Trigger*                                  | M                    | R                          | SA                                     |
| 2. Triaxial Peak Accelerographs  |                      |                            |  |
| a. Side of Steam Generator   | NA                   | R                          | NA                                     |
| b. <del>Pressurizer Surge Line</del>   | NA                   | R                          | NA                                     |
| c. ACCUMULATOR SAFETY INJECTION LINE<br>RHR System Heat Exchanger            | NA                   | R                          | NA                                     |
| 3. Triaxial Seismic Switches   |                      |                            |  |
| a. Reactor Building Foundation Mat*  | M                    | R                          | SA                                     |
| 4. Triaxial Response-Spectrum Recorders                                      |                      |                            |  |
| a. Reactor Building Foundation Mat*  | M                    | R                          | SA                                     |
| b. Steam Generator Support   | NA                   | R                          | NA                                     |
| c. Intermediate Bldg. Elev. 463'   | NA                   | R                          | NA                                     |
| d. Auxiliary Bldg. Foundation  | NA                   | R                          | NA                                     |

\* With control room indications and/or alarm.