Appendix E

Preparatory Work Prior to Walkdown

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E.1 INTRODUCTION

Experience from the SQUG trial plant reviews has demonstrated that preparatory work performed prior to conducting the plant screening evaluations will maximize the effectiveness of the walkdown. This appendix describes these preparations.

E.2 SYSTEMS ENGINEERING AND PLANT OPERATIONS

Prior to the walkdown, the systems engineer(s) and plant operations representative should review the plant design documents to familiarize themselves with plant design features and, in particular, those associated with the safe shutdown systems. Much of the required initial information is contained in the FSAR. In addition, piping and instrumentation diagrams (P&IDS), electrical one-line drawings, instrument block diagrams, operating procedures, system descriptions, plant arrangement drawings, and selected topical reports and specifications should be used to identify the safe shutdown equipment (Section 3).

Discussions with plant operations personnel are very helpful in identifying equipment within various safe shutdown trains. Systems engineers may wish to consider the inclusion of equipment which does not have seismic qualification documentation, thereby upgrading its seismic qualification status. Most of the industrial-grade equipment in the earthquake experience equipment class has been shown to be seismically rugged [1]with seismic capacity at least as great as the earthquake experience Bounding Spectrum even though it has not been qualified for seismic loadings.

Plant arrangement drawings should be marked with the location of each item of equipment selected for review and provided to the Seismic Capability Engineers who will be doing the seismic evaluation. In addition, the Safe Shutdown Equipment Lists (SSELs), described in

Section 3 and Appendix A, which identify the candidate equipment to be seismically verified, should be completed. It is recommended they be entered into a personal computer database management program for use in preparing columns 1 - 6 of the SVDS shown in Section 4, Exhibit 4-l.

E.3 PRE-WALKDOWN PLANNING

The purpose of pre-walkdown planning is to organize the who, how, where, and when associated with the plant walkdown. Judicious planning will minimize the time spent in the field by the Seismic Review Team (SRT).

The planning process should be performed with active participation from the principal walkdown participants and the utility personnel with experience in the configuration and operation of the plant under review. The following organizations or individuals will typically be involved in the walkdown and hence should be part of the planning effort:

- Utility manager in charge of the USI A-46 project effort
- Utility systems engineer(s)
- Plant operations and/or radiation protection personnel
- Seismic Capability Engineers

Advance planning on when to perform the walkdown is advisable. Walkdowns should not interfere with the normal operation of the plant. Security, radiation level, operations, and maintenance considerations are necessary in deciding when each area of the plant can be visited. Some areas of the plant are inaccessible during normal operation and can only be inspected during outage periods. The Screening Verification and Data Sheets (SVDSs), discussed in Section 4, can be organized by plant location and thereby used as a checklist and itinerary for the walkdown. The itinerary, however, should be flexible to allow the walkdown teams time to revisit certain areas or alter their plans because of difficulties in determining seismic adequacy of particular types of equipment. It is also advisable to provide the walkdown teams with the

itineraries in advance so that they can review the items of equipment assigned prior to the walkdown.

Advance planning and preparation are needed to gain access to operating plants, particularly if contractors are used to conduct the walkdown. The SRT may be required to obtain security clearances, access badges, and radiation training. The walkdown participants may need to be accompanied by plant security and radiation protection personnel; however, such accompaniment is costly (ties up personnel) and tends to interfere with normal plant operations and maintenance. It also increases the number of individuals involved with the walkdown which tends to slow down the pace of the effort. Advance notification and scheduling can streamline the process of gaining plant access. All people concerned with the plant walkdown including walkdown team members, plant operations personnel, health physics personnel, security personnel and utility staff should be advised of the dates and duration of the plant walkdown well in advance of the scheduled walkdowns (e.g., two months ahead of time).

The seismic review teams or individual team members may want to have discussions with other plant operations personnel prior to and during the walkdown to clarify the way a system or an item of equipment operates. If possible, these meetings should be planned well in advance so that people knowledgeable in the specific areas of concern will be available with a minimum of disruption in the normal operation of the plant.

A summary of all the available seismic design and qualification data should be prepared and provided to the SRT several weeks before their scheduled walkdown. The summary does not have to be formal, but it should be comprehensive. The Seismic Capability Engineers performing the walkdown should become thoroughly familiar with the plant seismic design basis. The greater the understanding of the plant seismic design basis and the design basis approaches taken for equipment qualification and anchorage, the easier it will be to exercise judgment and experience to eliminate outliers. The ground response spectra resulting from the Safe Shutdown Earthquake (SSE), the in-structure response spectra and how they were generated, and data pertaining to effective grade of each building should be provided to the SRT.

Construction details of the anchorages for the safe shutdown equipment are essential for evaluating the seismic adequacy of the equipment. Inspection and evaluation of anchorages is difficult if not impossible without the use of construction drawings, specifications, and bills of materials.

The documents which should be available to the SRT include:

1. List of the safe shutdown equipment prepared using Appendix A.
2. List of equipment for which prior seismic qualification documentation exists.
3. Summary of the plant seismic design basis, specifically: ground response spectra for the SSE, background data for effective grade definition, seismic design criteria, amplified in-structure response spectra, etc.
4. Standard details for equipment anchorages.
5. Plant arrangement drawings.
6. Health physics and plant security requirements.

REASONS FOR CHANGES TO GIP, PART II, APPENDIX E

Listed below are the specific reasons for making the changes marked with a vertical line in the margin of this appendix to create GIP-3A from GIP-3, Updated 5/16/97. The endnote numbers listed below correspond to the bracketed numbers (e.g., [1]) located in the text of this appendix where the changes are made.

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[1] SSER No. 2, Sec. III.5 – The GIP states that most of the equipment "has been shown to be seismically rugged . . ." As explained in SSER No. 2, Section III.2.1, the Staff considers this statement to be ambiguous unless the appropriate vibration level is associated with it.

The GIP has been amended in Part II, Appendix E, Section E.2 to address the Staff concern by adding to the subject phrase the following qualifying statement: " . . . with seismic capacity at least as great as the earthquake experience Bounding Spectrum . . ."