FINAL REPORT
MECHNICAL-ELECTRICAL AUXILIARY BUILDING BASEMAT
SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNIT 2

I. Summary

On October 4, 1978, pursuant to 10CFR50.55(e), Houston Lighting and Power Company notified the Nuclear Regulatory Commission of a dimensional error in the basemat of the Unit 2 Mechanical-Electrical Auxiliary Building. Interim reports on this deficiency were provided to the Nuclear Regulatory Commission on October 31, 1978 and April 24, 1979. Redesign of this structure in order to compensate for the dimensional error has resulted in only interior spatial alterations. Safety criteria and bases, stated in the safety analysis report, have been met in the redesign of the structure and the layout of the systems and components within. This final report provides sufficient information to permit an evaluation of the deficiency and the corrective action.

II. Description of the Deficiency

Due to a survey calculation error, the basemat of the Unit 2 Mechanical-Electrical Auxiliary Building was constructed one foot short on the east side of the building. The error occurred because, instead of using the containment/reactor centerline as the reference as had been intended, the building was laid out in the field using the dimensions relative to column line R.1 in the Fuel Handling Building. Column line R.1 in the Fuel Handling Building is offset one foot to the west of the containment/reactor centerline (see Figure 1) thus resulting in the east edge of the Mechanical-Electrical Auxiliary Building being laid out one foot short of the design. The survey calculations were not properly checked by the Field Engineering Supervision.

III. Corrective Action

Redesign of the Mechanical-Electrical Auxiliary Building to compensate for the one foot dimensional error has resulted in only interior spatial alterations. From column line A to column line H (see Figure 1), the layout within the building is unchanged from the original design. From column line H to column line M.8 the one foot has been compensated by reducing distances between column lines and removing excess floor space around the layout of systems and equipment. The general arrangement of equipment within the redesigned area is unchanged by the one foot dimension. Approximately three-fourths of the building (column A to column line H) is unchanged from the original design and the redesign affected only the west one-fourth of the building.

In compacting this area of the building all safety criteria and bases, stated in the safety analysis report, have been met for layout of the systems and components. The following generic drawing categories were reviewed for the Unit 2 Mechanical-Electrical Auxiliary Building:

1. Instrumentation Plan Drawings
2. Electrical Physical Drawings
3. Concrete Drawings
4. Steel Drawings
5. General Arrangement Drawings
6. Floor and Wall Sleeve Drawings
7. Composite Piping Drawings
8. Stress Isometric Drawings
9. Fabrication Isometric Drawings
10. Heating, Ventilation, and Air Conditioning Drawings

The redesign has been verified to assure the following safety criteria are still met:

Mechanical and Electrical Separation - FSAR Sections 3,7 and 8.

Protection Against Pipe Break and Associated Jet Impingement and Pipe Whip Effects - FSAR Section 3.6.

Protection Against Internally Generated Missiles - FSAR Section 3.5.

Protection Against Fire Hazards - FSAR Section 9.5.

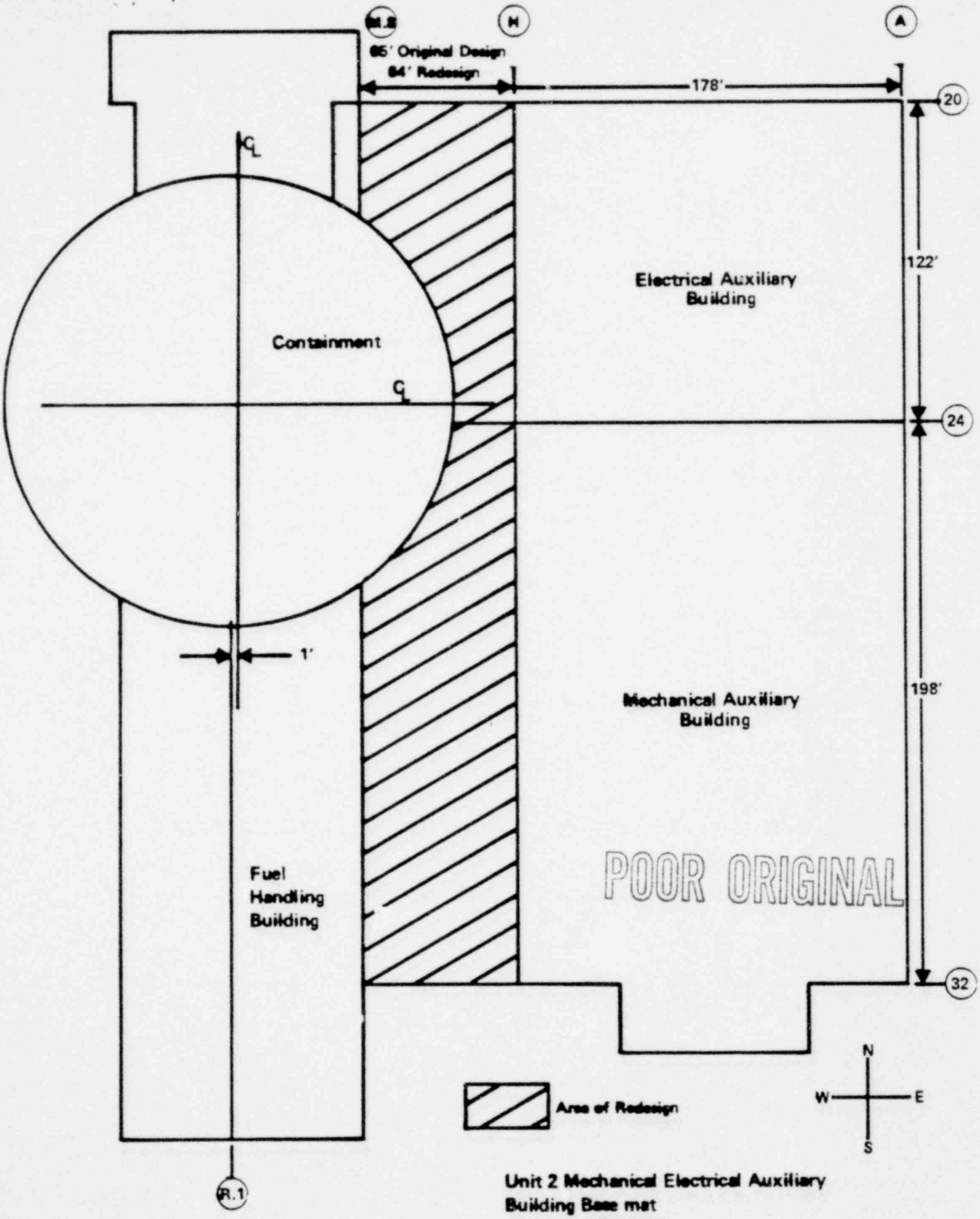
Protection Against Sabatoge (Security Considerations) - Security Plan.

There fore, no safety hazards exist as a result of the redesign of a portion of the Mechanical-Electrical Auxiliary Building.

In addition, a review of designated nuclear engineering design documents for both units of STP is performed to assure that the facility design adequately reflects the requirements of Regulatory Guide (RG) 8.8, and Houston Lighting and Power Company's policy to provide those design features which will result in a reduction of radiation exposure to operators, maintenance personnel and the general public. Designated design documents for systems that process, convey, indicate or record levels of radiation or radioactive material and facilities containing such systems receive an ALARA review. The redesign has been reviewed to ensure that operating and maintenance radiation exposures will continue to be "As low as reasonably achievable". Therefore, no unwarranted occupational radiation exposure will occur as a result of the redesign of a portion of the Mechanical-Electrical Auxiliary Building.

To assure against recurrence of a survey calculation error, the Field Engineering department has added an additional layer of supervision

responsible for thoroughly checking all layout calculations. In addition, one survey crew has been assigned to do all the layout control work. The crew assigned to perform the work is responsible for independently verifying the layout crew's calculations. This system provides a double level of checking of all calculations.



Unit 2 Mechanical Electrical Auxiliary Building Base mat

Figure 1