_PLC_Professional Loss Control, Inc.

STRUCTURAL STEEL ANALYSIS

for

PEACH BOTTOM GENERATING STATION

Calculation No. 94

Unit 2,3

Turbine Building El. 116'-0"

Counting Room

Fire Area 78E

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Revision: O

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PEACH BOTTOM GENERATING STATION

1. AREA DESCRIPTION

The area under consideration is the Counting Room on the 116'-O" elevation of the Turbine Building (Fire Area 78E). The bounding walls are constructed of reinforced concrete with an average thickness of 1 ft. The total surface area for heat transfer is 1,242 ft² (see Attachment A for a sketch of the area under consideration).

2. COMBUSTIBLE_LOADING

There are no combustible liquids or cable trays located in this area.

3. VENTILATION PARAMETERS

There is one door which enters this area.

Door_	Size	Location	
119	3'-0"x7'-0"	East Wall	

4. CASES_EXAMINED

Since there are no exposed fixed combustibles in this area, no cases were examined for a general room fire.

1

5. RESULTS

No general room fire was postulated because of the lack of exposed fixed combustibles in the area.

There are no cable trays in this area to present a localized heating exposure to the structural steel.

6. EFFECTS OF TRANSIENT COMBUSTIBLES

This area contains no exposed fixed combustibles. The table below lists the maximum heat release rate for transient combustibles for different fire durations which result in an area temperature less than 1100°F.

Eir		ration	Q/A_(KW/m ²)	B(FA)
	1	hour	10.5	1212
	2	hours	8.0	923
	з	hours	6.5	750

The distance between the floor and the deepest beams supporting the ceiling is 16'-8 1/2". The heat release rates required of floor level transient combustible fires to produce plume temperatures of 1100°F, 1300°F and 1500°F at the bottom flange of the beam have been determined and tabulated below. For the temperatures greater than 1100°F the time

2

required to heat the sizes of the beams supporting the ceiling have also been determined.

Time_to_1100°F(min)

Τſογ	Q(KW)	<u>W16_x_96_</u>
1100	7,257	
1300	9,549	38
1500	12,042	26





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Unit 2,3 Turbine Building, Elevation 116'-0" Counting Room

Surface Area	Calculation		
Walls North wall East wall South wall West wall	(11' x 18') (18' x 18') (11' x 18') (18' x 18')	198 324 198 324	ft2 ft2 ft2 ft2 ft2
Ceiling	(11' × 18')	1,044	ft ² ft ²
Total Surface	e Area Calculation	1,242	ft ²