

Attachment 2

DRESDEN UNIT 3

Proposed Technical Specification Page Changes

Revised Pages: 6

7

15

22

81B

81C-1, Figure 3.5-1
(Sheet 1 of 5)

81C-2, Figure 3.5-1
(Sheet 2 of 5)

81C-3, Figure 3.5-1
(Sheet 3 of 5)

81C-4, Figure 3.5-1
(Sheet 4 of 5)

New Page: 81C-5, Figure 3.1-1
(Sheet 5 of 5)

1.1 SAFETY LIMIT

2.1 LIMITING SAFETY SYSTEM SETTING

1. APRM Flux Scram Trip Setting (Run Mode)

When the reactor mode switch is in the run position, the APRM flux scram setting shall be:

$$S \leq [.65W_D + 55]$$

with a maximum set point of 120% for core flow equal to 98×10^6 lb/hr and greater.

Where:

S = setting in per cent of rated power

W_D = per cent of drive flow required to produce a rated core flow of 98 Mlb/hr.

In the event of operation with a maximum fraction of limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (.65W_D + 55) \left[\frac{FRP}{MFLPD} \right]$$

Where:

FRP = fraction of rated thermal power (2527 MWt)

MFLPD = maximum fraction of limiting power density where the limiting power density for each bundle is the design linear heat generation rate for that bundle.

The ratio of FRP/MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0, in which case the actual operating value will be used.

2. APRM Flux Scram Trip Setting (Refuel or Startup and Hot Standby Mode)

When the reactor mode switch is in the refuel or startup/hot standby position, the APRM scram shall be set at less than or equal to 15% of rated neutron flux.

1.1 SAFETY LIMIT

B. Core Thermal Power Limit (Reactor Pressure \leq 800 psig)

When the reactor pressure is \leq 800 psig or core flow is less than 10% of rated, the core thermal power shall not exceed 25 percent of rated thermal power.

C. Power Transient

1. The neutron flux shall not exceed the scram setting established in Specification 2.1.A for longer than 1.5 seconds as indicated by the process computer.
2. When the process computer is out of service, this safety limit shall be assumed to be exceeded if the neutron flux exceeds the scram setting established by Specification 2.1.A and a control rod scram does not occur.

D. Reactor Water Level (Shutdown Condition)

Whenever the reactor is in the shutdown condition with irradiated fuel in the reactor vessel, the water level shall not be less than that corresponding to 12 inches above the top of the active fuel* when it is seated in the core.

*Top of active fuel is defined to be 360 inches above vessel zero (see Bases 3.2).

2.1 LIMITING SAFETY SYSTEM SETTING

3. IPM Flux Scram Trip Setting

The IPM flux scram setting shall be set at less than or equal to 120/125 of full scale.

B. APRM Rod Block Setting

The APRM rod block setting shall be:

$$S \leq [.65W_D + 43]$$

The definitions used above for the APRM scram trip apply.

In the event of operation with a maximum fraction limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (.65W_D + 43) \left\{ \frac{FRP}{MFLPD} \right\}$$

The definitions used above for the APRM scram trip apply.

The ratio of FRP to MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0, in which case the actual operating value will be used.

Neutron Flux Trip Settings1. APRM Flux Scram Trip Setting
(Run Mode) (cont'd)

An increase in the APRM scram trip setting would decrease the margin present before the fuel cladding integrity Safety Limit is reached. The APRM scram trip setting was determined by an analysis of margins required to provide a reasonable range for maneuvering during operation. Reducing this operating margin would increase the frequency of spurious scrams which have an adverse effect on reactor safety because of the resulting thermal stresses. Thus, the APRM scram trip setting was selected because it provides adequate margin for the fuel cladding integrity Safety Limit yet allows operating margin that reduces the possibility of unnecessary scrams.

The scram trip setting must be adjusted to ensure that the LHGR transient peak is not increased for any combination of

maximum Fraction of Limiting Power Density (MFPLD) and reactor core thermal power. The scram setting is adjusted in accordance with the formula in Specification 2.1.A.1, when the MFPLD is greater than the Fraction of Rated Power (FRP).

2. APRM Flux Scram Trip Setting
(Refuel or Start & Hot Standby Mode)

For operation in the startup mode while the reactor is at low pressure, the APRM scram setting of 15 percent of rated power provides adequate thermal margin between the setpoint and the safety limit, 25 percent of rated. The margin is adequate to accommodate anticipated maneuvers associated with power plant startup. Effects of increasing pressure at zero or low void content are minor, cold water from sources available during startup is not much colder than that already in the system, tempera-

ture coefficients are small, and control rod patterns are constrained to be uniform by operating procedures backed up by the rod worth minimizer. Of all possible sources of reactivity input, uniform control rod withdrawal is the most probable cause of significant power rise. Because the flux distribution associated with uniform rod withdrawals does not involve high local peaks, and because several rods must be moved to change power by a significant percentage of rated power, the rate of power rise is very slow. Generally, the heat flux is in near equilibrium with the fission rate. In an assumed uniform rod withdrawal approach to the scram level, the rate of power rise is no more than 5 percent of rated power per minute, and the APRM system would be more than adequate to assure a scram before the power could exceed the safety limit. The 15 percent APRM scram remains active until the mode switch is placed in the RUN position. This switch occurs when reactor pressure is greater than 850 psig.

3. IRM Flux Scram Trip Setting

The IRM system consists of 8 chambers, 4 in each of the reactor protection system logic channels. The IRM is a 5-decade instrument which covers the range of power level between that covered by the SRM and the APRM. The 5 decades are broken down into 10 ranges, each being one-half of a decade in size.

3.1 LIMITING CONDITION FOR OPERATION

3.1 REACTOR PROTECTION SYSTEM

Applicability:

Applies to the instrumentation and associated devices which initiate a reactor scram.

Objective:

To assure the operability of the reactor protection system.

Specification:

- A. The setpoints, minimum number of trip systems, and minimum number of instrument channels that must be operable for each position of the reactor mode switch shall be as given in Table 3.1.1. The response times of the individual functions shall not exceed 0.10 second.
- B. If during operation, the maximum fraction of limiting power density exceeds the fraction of rated power when operating above 25% rated thermal power, either:
 - a. The APEM scram and rod block settings shall be reduced to the values given by the equations in Specifications 2.1.A.1 and 2.1.B.
 - b. The power distribution shall be changed such that the maximum fraction of limiting power density no longer exceeds the fraction of rated power.

4.1 SURVEILLANCE REQUIREMENT

4.1 REACTOR PROTECTION SYSTEM

Applicability:

Applies to the surveillance of the instrumentation and associated devices which initiate reactor scram.

Objective:

To specify the type and frequency of surveillance to be applied to the protection instrumentation.

Specification:

- A. Instrumentation systems shall be functionally tested and calibrated as indicated in Tables 4.1.1 and 4.1.2, respectively.
- B. Daily during reactor power operation, the core power distribution shall be checked for maximum fraction of limiting power density (MFLPD) and compared with the fraction of Rated Power (FRP) when operating above 25% rated thermal power.

3.5 LIMITING CONDITION FOR OPERATION

Average Planar LHGR

During steady state power operation, the Average Planar Linear Heat Generation Rate (APLHGR) of all the rods in any fuel assembly, as a function of average planar exposure, at any axial location, shall not exceed the maximum average planar LHGR shown in Figure 3.5-1. If at any time during operation it is determined by normal surveillance that the limiting value for APLHGR is being exceeded, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. If the APLHGR is not returned to within the prescribed limits within two (2) hours, the reactor shall be brought to the Cold Shutdown condition within 36 hours. Surveillance and corresponding action shall continue until reactor operation is within the prescribed limits.

4.5 SURVEILLANCE REQUIREMENT

I. Average Planar Linear Heat Generation Rate (APLHGR)

The APLHGR for each type of fuel as a function of average planar exposure shall be determined daily during reactor operation at \geq 25% rated thermal power.

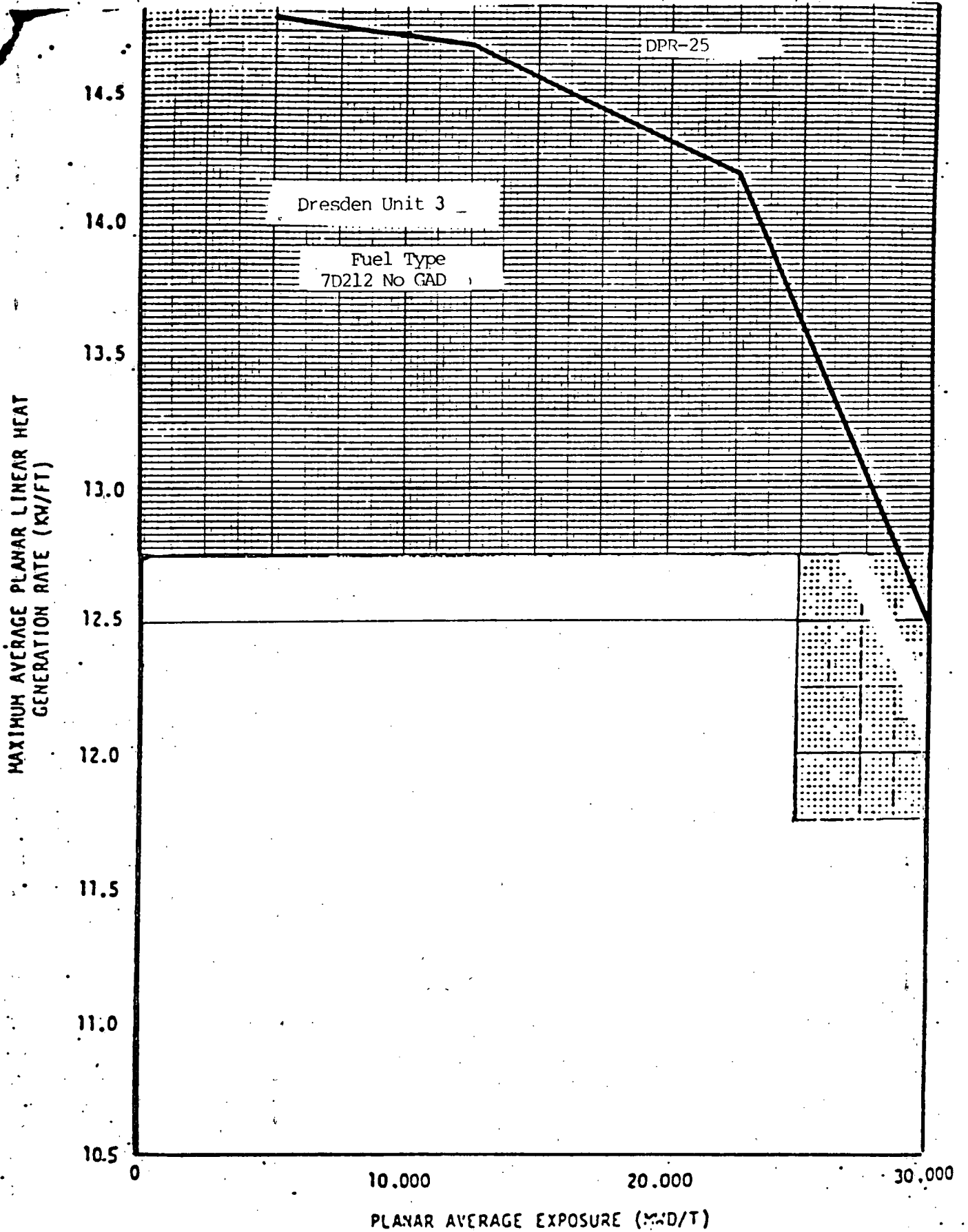


FIGURE 3.5-1
(Sheet 1 of 5)

MAXIMUM AVERAGE PLANAR LINEAR
HEAT GENERATION RATE (MAPLHGR)
VS. PLANAR AVERAGE EXPOSURE

MAXIMUM AVERAGE PLANAR LINEAR HEAT GENERATION RATE (KH/FT)

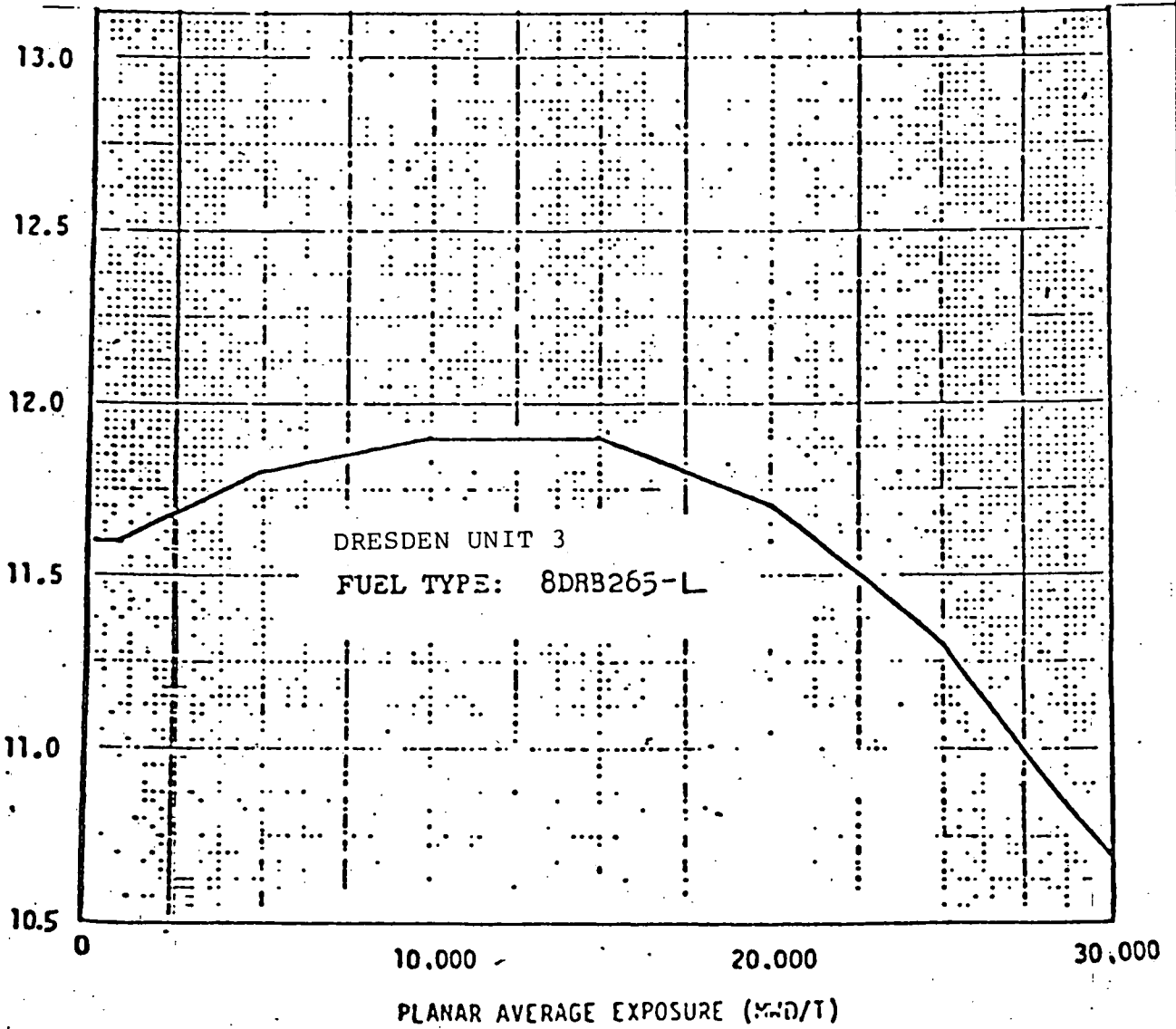


FIGURE 3.5-1
(Sheet 2 of 5)

MAXIMUM AVERAGE PLANAR LINEAR HEAT GENERATION RATE (MAPLHGR) VS. PLANAR AVERAGE EXPOSURE

MAXIMUM AVERAGE PLANAR LINEAR HEAT GENERATING RATE (Kw/ft)

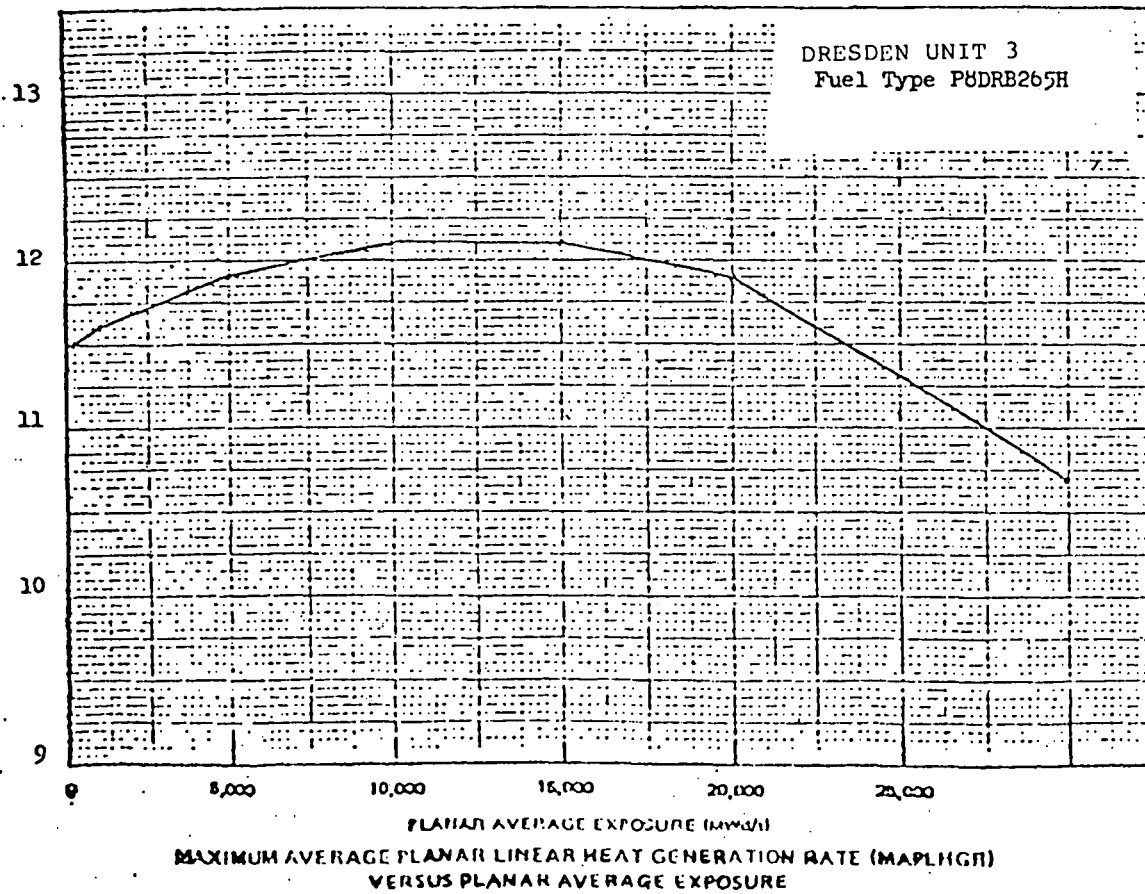
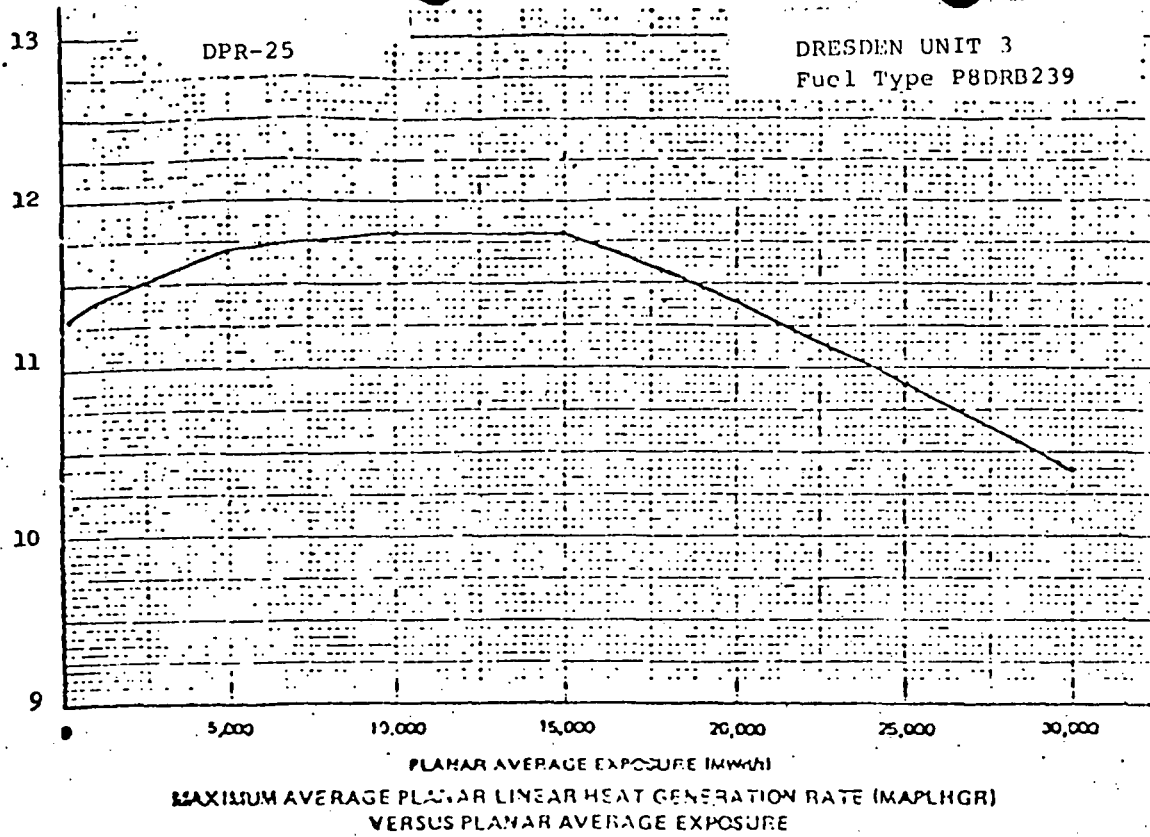
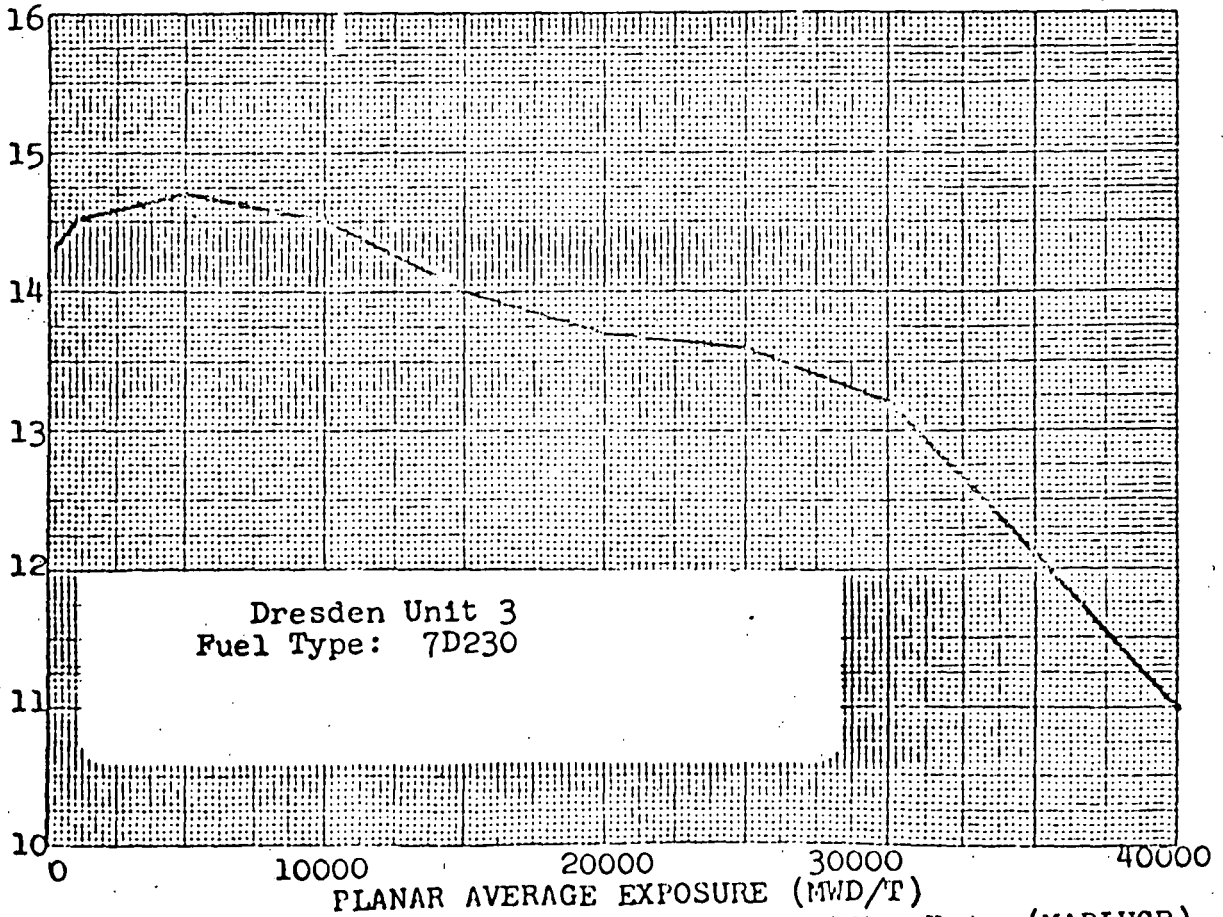
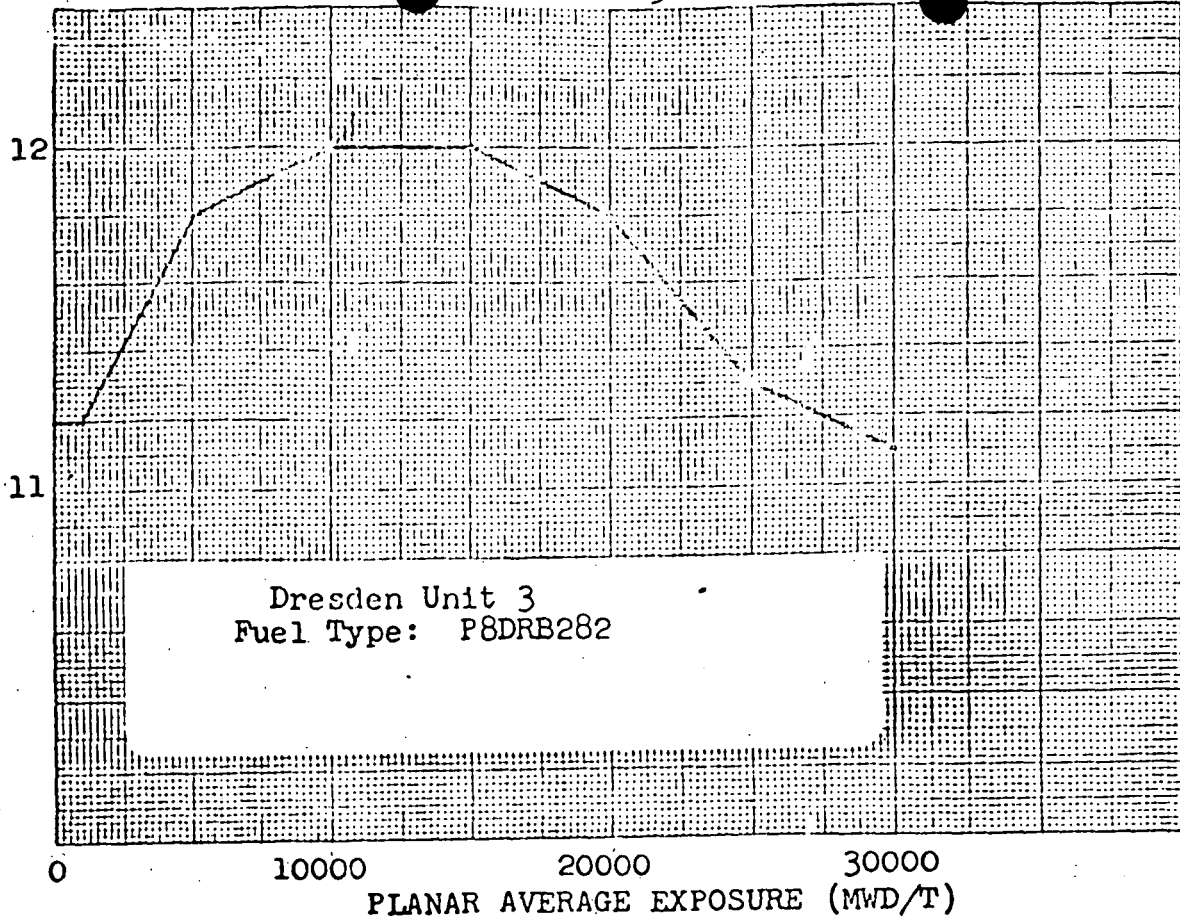


Figure 3.5-1
(Sheet 3 of 5)

Maximum Average Planar Linear Heat Generation Rate (kw/ft)



Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) vs. Planar Average Exposure

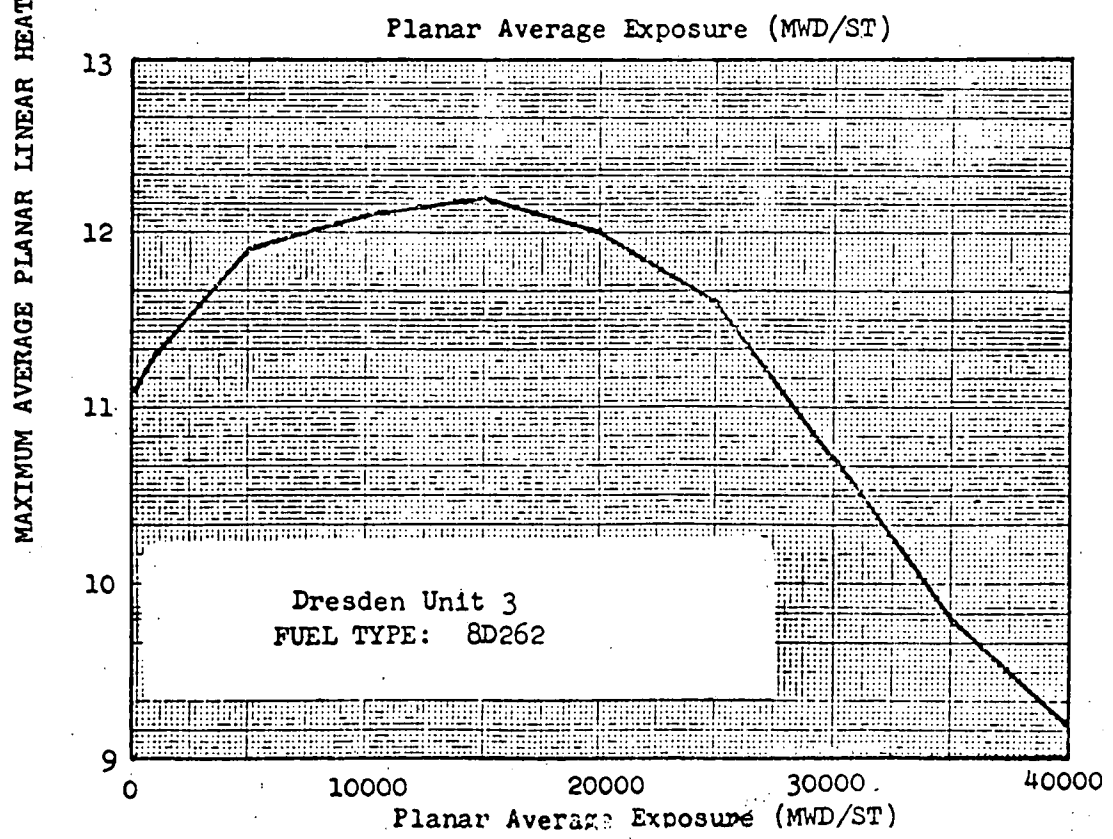
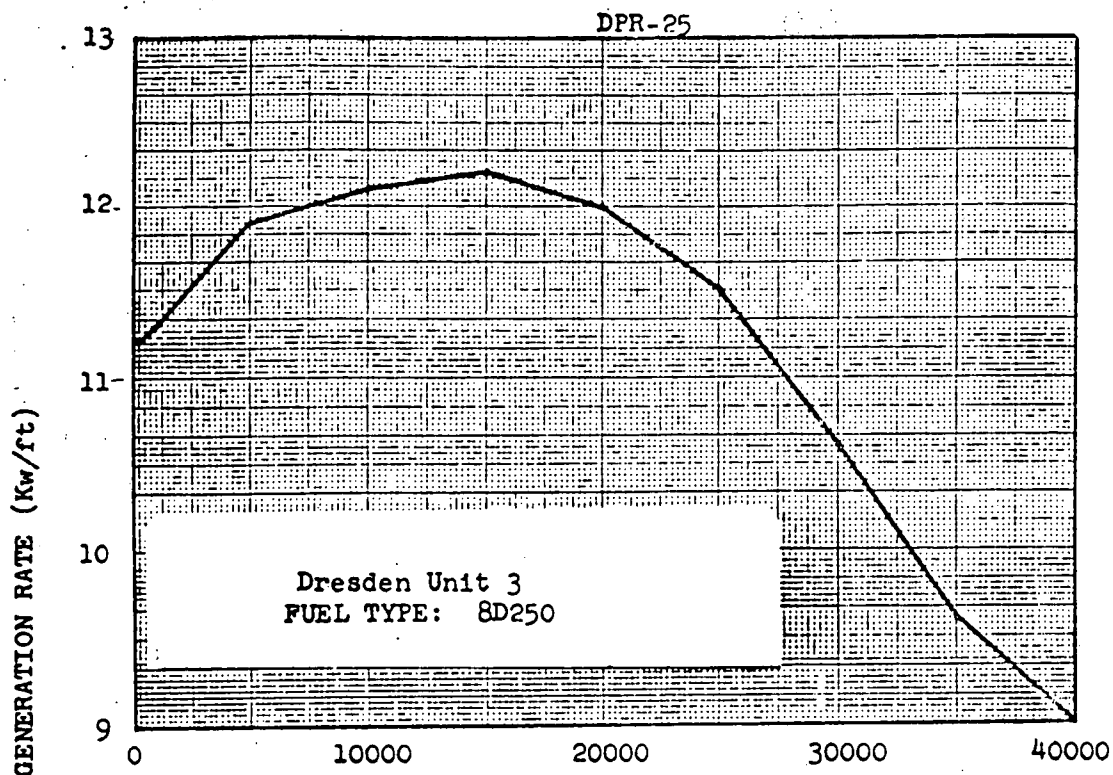


Figure 3.5-1 MAXIMUM AVERAGE PLANAR LINEAR HEAT GENERATION RATE (MAPLHGR) vs. PLANAR AVERAGE EXPOSURE
(Sheet 5 of 5)