



GE Nuclear Energy

General Electric Company
125 Clinton Avenue, San Jose, CA 95125

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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Charles L. Miller, Director
Standardization and Non-Power Reactor Project Directorate

Subject: GE Response to Radiation Protection Branch Request at GE/NRC
Meeting, July 17, 1991

Enclosed are thirty four (34) copies of the GE response to the request, made during the subject meeting, pertaining to ABWR fuel bundle source term information and the geometry of the drywell.

Sincerely,

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Regulatory and Analysis Services
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cc: F. A. Ross (DOE)
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R.L. Pederson (NRC)
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J. F. Quirk (GE)

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To develop the fuel bundle source term the following should be used:

1. Each fuel bundle is 6.1 inch (15.5cm) by 6.1 inch. There are 872 bundles in the ABWR. Therefore the average power produced by each bundle is:

$$3926 \text{ MWt} / 872 = 4.50 \text{ MWt} = 4.5\text{E}+06 \text{ watt}$$

2. The power produced by any given bundle can be found by multiplying the value above by the specific bundle power given in Table 12.2-1, sub-table E.
3. The bundle can then be described as a box 6.1 x 6.1 x 150 inches. Note 144 inch or 150 inch fuel may be used in ABWR. The bundle then can be further described axially from Table 12.2-1, pg 12.2-10 which gives the axial variation along the length of the bundle. Please note there is a typo in this table and the last value in the table should be 0.02928 and not 0.2928. Table 1 is provided to show total relative exposure compared to the power values in Table 12.2-1.
4. Since the power in watts in each axial volume is known, the values in Table 12.2-3 can be used to calculate the spectral Mev/sec at 1 day or 1 week after shutdown. One day is the minimum fuel handling time, and one week is more typical of when fuel handling would occur.

Table 1. Comparison Power to Exposure

Height	Relative Exposure	Table 12.-2 Values	
		Power	Relative Power
381.000			
365.130	0.82930	0.18120	0.28332
349.250	1.02090	0.35130	0.54928
333.380	1.08010	0.48770	0.76255
317.500	1.11730	0.58730	0.91828
301.630	1.14320	0.65700	1.02726
285.750	1.15430	0.70520	1.10262
269.880	1.15650	0.73890	1.15531
254.000	1.15540	0.76300	1.19300
238.130	1.15620	0.78080	1.22083
222.250	1.16450	0.79390	1.24131
206.380	1.18780	0.80290	1.25538
190.500	1.27820	0.80680	1.26148
174.630	1.24200	0.80280	1.25523
158.750	1.22510	0.77070	1.20504
142.880	1.20490	0.76340	1.19362
127.000	1.17940	0.76260	1.19237
111.130	1.14580	0.76430	1.19503
95.250	1.09940	0.76490	1.19597
79.375	1.03320	0.76020	1.18862
63.500	0.93724	0.74460	1.16423
47.625	0.79903	0.70910	1.10872
31.750	0.60459	0.64050	1.00146
15.875	0.34551	0.18120	0.28332
0.0	0.03077	0.02928	0.04578

ABWR UPPER DRYWELL

All Dimensions wrt

Vessel Zero

Dimensions in centimeters

Vessel Head Thck

Nominal 10.0

Max 11.5

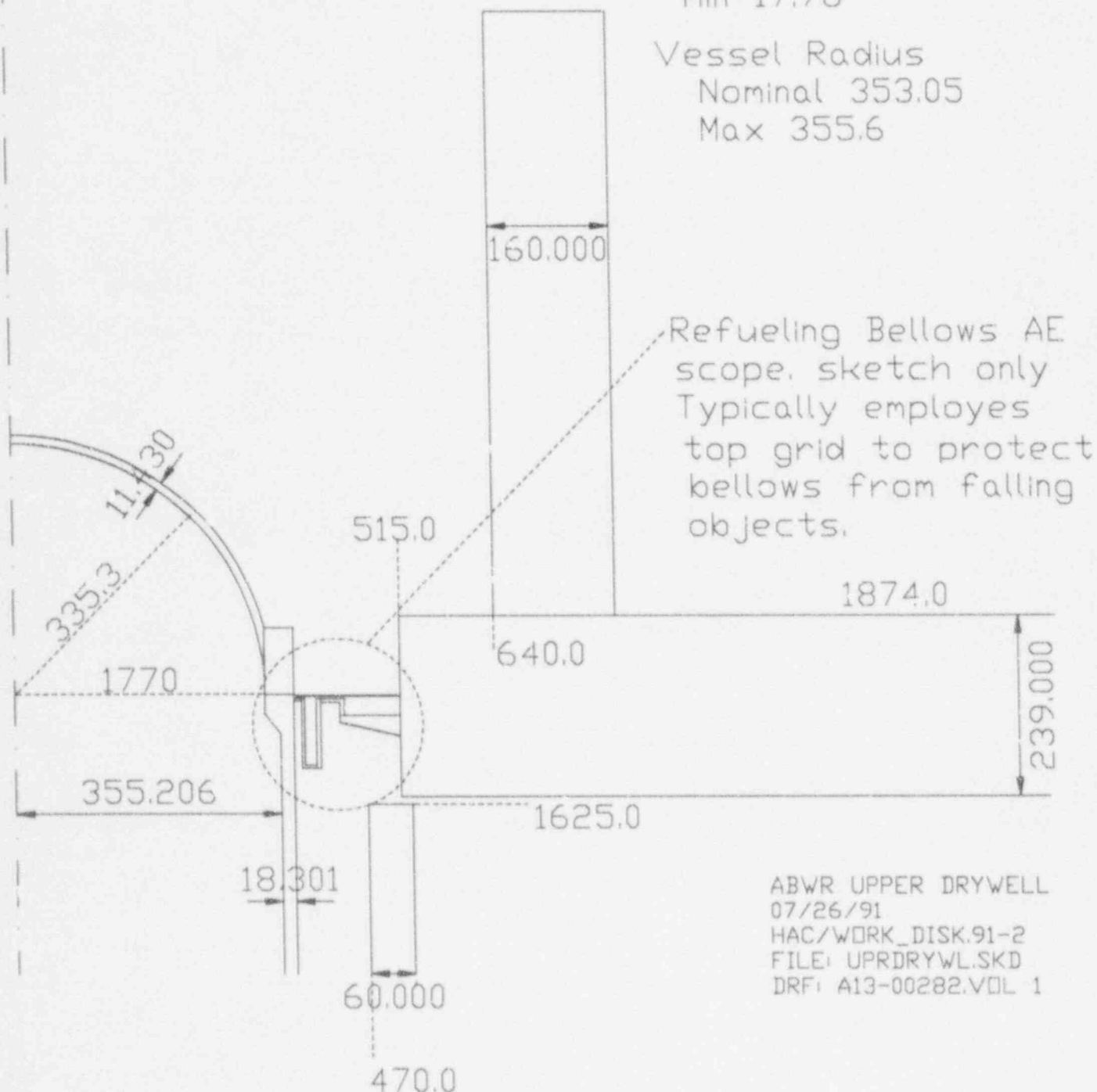
Vessel Wall Thck

Min 17.78

Vessel Radius

Nominal 353.05

Max 355.6



ABWR UPPER DRYWELL
07/26/91
HAC/WORK_DISK.91-2
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