



GE Energy

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**Subject: Response to Portion of NRC Request for Additional Information
Letter No. 56 – ATWS – RAI Number 21.6-77S02**

Enclosure 1 contains GE's response to the subject NRC RAIs transmitted via the Reference 1 letter.

If you have any questions or require additional information regarding the information provided here, please contact me.

Sincerely,

James C. Kinsey for

James C. Kinsey
Project Manager, ESBWR Licensing

Reference:

1. MFN 06-316, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 56 Related to the ESBWR Design Certification Application*, September 7, 2006

Enclosures:

1. MFN 06-339, Supplement 2– Response to Portion of NRC Request for Additional Information Letter No. 56 – ATWS – RAI Number 21.6-77S02

cc: AE Cubbage USNRC (with enclosures)
GB Stramback GE/San Jose (with enclosures)
BE Brown GE/Wilmington (with enclosures)
eDRF 0063-9717

Enclosure 1

MFN 06-339, Supplement 2

**Response to Portion of NRC Request for
Additional Information Letter No. 56
Related to ESBWR Design Certification Application**

ATWS

RAI Number 21.6-77 S02

NRC RAI 21.6-77 S02

Revise response to reflect TRACG ATWS Error for Leakage Flow Rates

GE Response

The updated Table 1 values are shown in sage green in Table 1A. The original values appear next to the corrected values. The maximum percent difference between the leakages per channel value is 6.407% in Ring 3. This is considered within the bounds that sensitivity studies would provide.

The three-digit CHAN ID number (referred to in the table as ID) (e.g. CHAN 321) indicates that this CHAN group is in Ring 3, the second digit indicates that it is in Sector 2.

Table 1A Leakage Flow Rates for Each Channel in ESBWR Core at 185 seconds with Updated Leakage Values

ID	# bundles	Leakage (Side)* (kg/s)	Corrected Leakage (Side)* (kg/s)	Leakage (Core Support Plate) (kg/s)	Corrected CSP Leakage (kg/s)**	Leakage per channel**/ (kg/s)	CORRECTED Leakage per channel**/ (kg/s)	%Δ Leakage per Channel
111	15	-4.836	-5.066	-1.371	-1.447	-0.408	-0.428	4.691%
112	1	-0.321	-0.336	-1.371	-1.447	-0.407	-0.426	4.633%
121	80	-25.780	-27.030	-6.832	-7.227	-0.408	-0.428	4.801%
131	80	-25.680	-26.700	-6.807	-7.232	-0.406	-0.424	4.260%
141	15	-4.814	-5.124	-1.366	-1.448	-0.406	-0.432	5.967%
142	1	-0.324	-0.347	-1.366	-1.448	-0.410	-0.437	6.295%
151	80	-25.680	-26.940	-6.801	-7.207	-0.406	-0.427	4.880%
161	80	-25.770	-26.670	-6.835	-7.219	-0.408	-0.424	3.790%
total	352						Avg %Δ	4.91%
211	15	-4.807	-4.954	-1.362	-1.437	-0.406	-0.420	3.439%
212	1	-0.319	-0.330	-1.362	-1.437	-0.404	-0.419	3.635%
221	88	-28.110	-28.860	-7.439	-7.851	-0.404	-0.417	3.165%
231	88	-28.010	-28.950	-7.403	-7.873	-0.402	-0.418	3.828%
241	15	-4.764	-4.948	-1.345	-1.434	-0.402	-0.419	4.247%
242	1	-0.316	-0.329	-1.345	-1.434	-0.400	-0.419	4.454%
251	88	-27.990	-28.800	-7.388	-7.827	-0.402	-0.416	3.413%
261	88	-28.120	-29.010	-7.433	-7.867	-0.404	-0.419	3.591%
total	384						Avg %Δ	3.72%
311	12	-3.791	-3.920	-1.222	-1.287	-0.392	-0.407	3.629%
321	67	-21.130	-21.890	-6.990	-7.374	-0.392	-0.408	3.818%
331	67	-21.070	-21.920	-6.917	-7.337	-0.390	-0.408	4.242%
341	12	-3.766	-3.926	-1.211	-1.284	-0.390	-0.407	4.394%
351	67	-21.140	-21.830	-6.854	-7.256	-0.391	-0.406	3.630%
361	67	-21.120	-21.930	-6.599	-6.986	-0.388	-0.404	4.044%
total	292						Avg %Δ	3.96%
411	4	-1.18E+00	-1.241	-1.222	-1.287	-0.370	-0.391	5.254%
421	24	-7.13E+00	-7.542	-6.990	-7.374	-0.374	-0.395	5.401%
431	24	-7.08E+00	-7.549	-6.917	-7.337	-0.371	-0.395	6.070%
441	4	-1.16E+00	-1.244	-1.211	-1.284	-0.366	-0.391	6.407%
451	24	-7.32E+00	-7.538	-6.854	-7.256	-0.380	-0.394	3.450%
461	24	-7.11E+00	-7.531	-6.599	-6.986	-0.369	-0.391	5.633%
total	104						Avg %Δ	5.37%

***Negative denotes flow INTO Channel, OUT of bypass flow domain**

****The values in this column are for the entire sector (TRACG cell). For example the total core support plate (CSP) leakage flow rate for TRACG Cell # 1 (i.e. a 16-deg azimuthal sector) is 1.447 kg/s, as shown in the first two entries in this column. There are two CHAN groups in this TRACG sector, CHAN 111, and 112. So the value is entered in both the first and the second rows in this column.**

^yThe values in these columns represent, for a given CHAN group, e.g. CHAN 111, the sum of (the per bundle leakage through the lower tie plate holes)+(the CSP leakage for the sector divided by the total number of bundles in that azimuthal sector).

DCD Impact:

No changes to the subject ATWS LTR will be made in response to this RAI.

No changes to the DCD will be made in response to this RAI.