



**FPL Energy**  
Seabrook Station

FPL Energy Seabrook Station  
P.O. Box 300  
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**SEP 13 2004**

Docket No. 50-443

SBK-L-04049

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

Reference: FPL Energy Seabrook Letter NYN-03061, Seabrook Station License Amendment Request 03-02, "Implementation of Alternate Source Term," dated October 6, 2003.

Seabrook Station  
"Response to Request for Additional Information  
Regarding License Amendment Request 03-02"

Enclosed is the FPL Energy Seabrook, LLC (FPL Energy Seabrook) response to request for additional information associated with License Amendment Request (LAR) 03-02 received on August 6, 2004.

Should you have any questions concerning this response, please contact Mr. James M. Peschel, Regulatory Programs Manager, at (603) 773-7194.

Very truly yours,

FPL Energy Seabrook, LLC

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Mark E. Warner  
Site Vice President

A001

cc: S. J. Collins, NRC Region I Administrator  
S. P. Wall, NRC Project Manager, Project Directorate I-2  
G. T. Dentel, NRC Senior Resident Inspector

Mr. Bruce Cheney, Director  
New Hampshire Office of Emergency Management  
State Office Park South  
107 Pleasant Street  
Concord, NH 03301

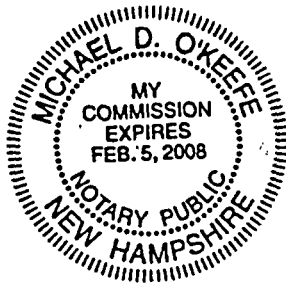
**OATH AND AFFIRMATION**

I, Mark E. Warner, Site Vice President of FPL Energy Seabrook, LLC, hereby affirm that the information and statements contained within this response to the Request for Additional Information to License Amendment Request 03-02 are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.

Sworn and Subscribed  
before me this  
13 day of September, 2004

Michael O'Keefe  
Notary Public

Mark E. Warner  
Mark E. Warner  
Site Vice President



**Enclosure to SBK-L-04049**

Response to Request for Additional Information associated with License  
Amendment Request (LAR) 03-02 received on August 6, 2004

1. Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," provides assumptions acceptable to the NRC staff for evaluating the radiological consequences of a design basis accidents at pressurized water reactors and states the following:

"The density used in converting volumetric leak rates (eg, gpm) to mass leak rates (eg, lbm/hr) should be consistent with the basis of surveillance tests used to show compliance with leak rate technical specifications. These tests are typically based on cool liquid. Facility instrumentation used to determine leakage is typically located on lines containing cool liquids. In most cases, the density should be assumed to be 1.0 gm/cc (62.4 lbm/ft<sup>3</sup>)."

Provide the density values to be used for the event analyses discussed in Section 2, "Radiological Consequences – Event Analyses," of Enclosure 2 of the October 6, 2003 submittal. Explain the basis for these values (i.e. based on cool versus hot liquid).

FPLE Response:

Based on an NRC comment and Seabrook Station's review of prior design bases and testing methods, Seabrook is providing calculation revisions to include dose analysis cases with a 1.0 gm/cc (62.4 lbs/ft<sup>3</sup>) conversion density for primary to secondary leakage. The current surveillance tests used to show compliance with leak rate technical specifications is based on cool liquids.

Note that the Control Room unfiltered inleakage was reduced to the limiting LOCA value (of 150 cfm) for the RCCA Ejection (with Secondary Side Release), Main Steam Line Break (both pre-accident and concurrent iodine spike cases) and Locked Rotor events. Also, note that the (limiting) 0-2 hour EAB atmospheric dispersion factor (i.e., X/Q) was applied for the entire duration of the event.

The following tables present the results of the revised analyses.

**Results of New Cases with Cold Density (1.0 gm/cc or 62.4 lbs/ft.<sup>3</sup>) for Primary to  
Secondary Leakage Flow Conversion**

**SGTR with Pre-accident Iodine Spike (ASDV Case 1)**

Dose Contribution	TEDE Dose (rem)		
	EAB – worst 2 hr	LPZ – 30 day	CR – 30 day
Noble Gas	2.7996E-01	1.4170E-01	6.2233E-02
RCS and Iodine Spike Activity	3.4875E+00	1.7075E+00	1.5044E+00
Secondary Activity	1.0164E-02	5.4074E-03	8.0378E-03
Control Room Shine Dose			0.45
<b>Total</b>	<b>3.78</b>	<b>1.85</b>	<b>2.02</b>
<b>Acceptance Criteria</b>	<b>25</b>	<b>25</b>	<b>5</b>
<b>Control Room Unfiltered Inleakage = 300 cfm</b>			

**SGTR with Concurrent Iodine Spike (ASDV Case 1)**

Dose Contribution	TEDE Dose (rem)		
	EAB – worst 2 hr	LPZ – 30 day	CR – 30 day
Noble Gas	2.7996E-01	1.4170E-01	6.2233E-02
Iodine Spike Activity	1.2846E+00	6.3686E-01	5.4245E-01
RCS Activity (non-iodine)	6.3783E-01	3.1241E-01	2.8366E-01
Secondary Activity	1.0164E-02	5.4074E-03	8.0378E-03
Control Room Shine Dose			0.45
<b>Total</b>	<b>2.21</b>	<b>1.10</b>	<b>1.35</b>
<b>Acceptance Criteria</b>	<b>2.5</b>	<b>2.5</b>	<b>5</b>
<b>Control Room Unfiltered Inleakage = 300 cfm</b>			

**SGTR with Pre-accident Iodine Spike (ASDV Case 2)**

Dose Contribution	TEDE Dose (rem)		
	EAB – worst 2 hr	LPZ – 30 day	CR – 30 day
Noble Gas	2.7996E-01	1.4170E-01	6.2233E-02
RCS and Iodine Spike Activity	3.4922E+00	1.7074E+00	1.5030E+00
Secondary Activity	9.9918E-03	5.3225E-03	8.1246E-03
Control Room Shine Dose			0.45
<b>Total</b>	<b>3.78</b>	<b>1.85</b>	<b>2.02</b>
<b>Acceptance Criteria</b>	<b>25</b>	<b>25</b>	<b>5</b>
<b>Control Room Unfiltered Inleakage = 300 cfm</b>			

**SGTR with Concurrent Iodine Spike (ASDV Case 2)**

Dose Contribution	TEDE Dose (rem)		
	EAB – worst 2 hr	LPZ – 30 day	CR – 30 day
Noble Gas	2.7996E-01	1.4170E-01	6.2233E-02
Iodine Spike Activity	1.0983E+00	5.4251E-01	4.6257E-01
RCS Activity (non-iodine)	6.3762E-01	3.1186E-01	2.8312E-01
Secondary Activity	9.9918E-03	5.3225E-03	8.1246E-03
Control Room Shine Dose			0.45
<b>Total</b>	<b>2.03</b>	<b>1.00</b>	<b>1.27</b>
<b>Acceptance Criteria</b>	<b>2.5</b>	<b>2.5</b>	<b>5</b>
<b>Control Room Unfiltered Inleakage = 300 cfm</b>			

### RCCA Ejection with Secondary Side Release

Dose Contribution	TEDE Dose (rem)		
	EAB – worst 2 hr	LPZ – 30 day	CR – 30 day
DNB Fuel Failure - Noble Gas	9.6444E-01	8.2715E-01	1.1644E-01
FCM Fuel Failure - Noble Gas	2.4102E-01	2.0671E-01	2.9100E-02
DNB Fuel Failure - Iodine and Aerosols	1.2406E+00	8.6321E-01	2.3900E+00
FCM Fuel Failure - Iodine and Aerosols	1.1188E-01	7.8580E-02	2.1529E-01
Initial RCS - Noble Gas	1.1738E-03	1.3738E-03	2.4703E-04
Initial RCS & SG - Iodine & Aerosols	1.0382E-02	1.1891E-02	2.3877E-02
Control Room Shine Dose			0.45
<i>Total</i>	<i>2.57</i>	<i>1.99</i>	<i>3.22</i>
<i>Acceptance Criteria</i>	<i>6.3</i>	<i>6.3</i>	<i>5.0</i>
<b>Control Room Unfiltered Inleakage = 150 cfm</b>			

### MSLB with Pre-accident Iodine Spike Base Case

Dose Contribution	TEDE Dose (rem)		
	EAB – worst 2 hr	LPZ - 30 day	CR – 30 day
Noble Gas	1.2901E-03	1.5106E-03	6.5965E-04
RCS and Spike Activity	4.9500E-02	1.3051E-01	4.3406E-01
Secondary Activity	3.3136E-02	1.6565E-02	1.1113E-01
Control Room Shine Dose			0.45
<i>Total</i>	<i>0.08</i>	<i>0.15</i>	<i>1.00</i>
<i>Acceptance Criteria</i>	<i>25</i>	<i>25</i>	<i>5</i>
<b>Control Room Unfiltered Inleakage = 150 cfm</b>			

### MSLB with Concurrent Iodine Spike Base Case

Dose Contribution	TEDE Dose (rem)		
	EAB – worst 2 hr	LPZ – 30 day	CR – 30 day
Noble Gas	1.2901E-03	1.5106E-03	6.5965E-04
Iodine Spike Activity	3.4855E-01	7.7199E-01	2.5768E+00
RCS non-iodine Activity	9.4882E-03	2.6760E-02	8.6570E-02
Secondary Activity	3.3136E-02	1.6565E-02	1.1113E-01
Control Room Shine Dose			0.45
<b>Total</b>	<b>0.39</b>	<b>0.82</b>	<b>3.23</b>
<b>Acceptance Criteria</b>	<b>2.5</b>	<b>2.5</b>	<b>5</b>
<b>Control Room Unfiltered Inleakage = 150 cfm</b>			

### Locked Rotor (10% DNB)

Dose Contribution	TEDE Dose (rem)		
	EAB – worst 2 hr	LPZ – 30 day	CR – 30 day
DNB Fuel Failure - Noble Gas	3.2148E-01	2.7573E-01	3.8817E-02
DNB Fuel Failure - Non-Noble Gas	6.7665E-01	4.6646E-01	1.3152E+00
Initial RCS Activity – Noble Gas	1.1738E-03	1.3738E-03	2.4703E-04
Initial RCS & SG Activity – Iodine & Aerosol	1.0382E-02	1.1891E-02	2.3877E-02
Control Room Shine Dose			0.45
<b>Total</b>	<b>1.01</b>	<b>0.76</b>	<b>1.83</b>
<b>Acceptance Criteria</b>	<b>2.5</b>	<b>2.5</b>	<b>5</b>
<b>Control Room Unfiltered Inleakage = 150 cfm</b>			



**Small Line Break Outside of Containment**

<b>Dose Contribution</b>	<b>TEDE Dose (rem)</b>		
	<b>EAB – worst 2 hr</b>	<b>LPZ – 30 day</b>	<b>CR – 30 day</b>
Iodine Spike Activity	2.4988E-01	1.7343E-01	8.6226E-01
RCS Activity	2.0905E-01	1.0913E-01	3.4414E-01
Control Room Shine Dose			0.45
<b><i>Total</i></b>	<b>0.46</b>	<b>0.28</b>	<b>1.66</b>
<b><i>Acceptance Criteria</i></b>	<b>2.5</b>	<b>2.5</b>	<b>5</b>
<b>Control Room Unfiltered Inleakage = 300 cfm</b>			