



FPL

SEP 06 2001

L-2001-204
10 CFR 50.90
10 CFR 50.67
10 CFR 51.22

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

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments: Response to Request for Additional Information
Selective Implementation of Alternate Source Term:
Containment Equipment Door Open During Core Alterations

By letters L-2001-152, dated July 18, 2001, and L-2001-201, dated August 30, 2001, Florida Power and Light Company (FPL) requested an amendment to Facility Operating Licenses DPR-31 and DPR-41 for Turkey Point Units 3 and 4, respectively, to revise the Turkey Point Units 3 and 4 Technical Specification (TS) 3.9.4, Containment Penetrations. TS 3.9.4 requires that the containment equipment door be closed during core alterations or movement of irradiated fuel within containment. The proposed changes to TS 3.9.4 would require the containment equipment door to be closed only during movement of recently irradiated fuel in containment.

As requested by NRC staff during the September 4, 2001 discussions, the attachment to this letter provides the requested information regarding fission product inventories.

In accordance with 10 CFR 50.91(b)(1), a copy of this letter is being forwarded to the State Designee for the State of Florida.

Should there be any questions, please contact Steve Franzone, Licensing Manager, at (305) 246-6228.

Very truly yours,

John P. McElwain
Vice President
Turkey Point Plant

Attachment

OIH

cc: Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, Turkey Point Plant
Turkey Point Project Manager, USNRC, NRR
Florida Department of Health and Rehabilitative Services

A001

STATE OF FLORIDA)
) ss.
COUNTY OF MIAMI-DADE)

John P. McElwain being first duly sworn, deposes and says:

That he is Vice President, Turkey Point Plant, of Florida Power and Light Company, the Licensee herein;

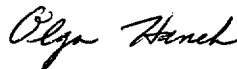
That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information and belief, and that he is authorized to execute the document on behalf of said Licensee.


John P. McElwain

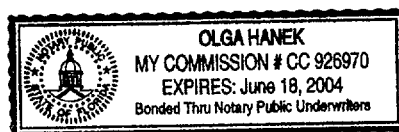
Subscribed and sworn to before me this

 Cth day of September 2001,

Olga Hanek
Name of Notary Public (Type or Print)



John P. McElwain is personally known to me.



ATTACHMENT TO L-2001-204

- Calculation Cover Sheet
- Fission Product Inventories
(Pages 23, 32, and 33 of Calculation)

Calculation No.: FPL-REG-006 Page: 1 of 270

Project No.: 01614.02.0001 Document No.: FPL-REG-006

Project Name: FHA Rad Analysis Client: Florida Power & Light Company

Calculation Title: Turkey Point NPP – Radiological Evaluation of a Fuel Handling Accident Based on the Alternative Source Term Methodology Rev. No.: 0

SOFTWARE USAGE

*Pre-Use Verification: JH Software Name: ORIGEN-2 Version: 2.1

Target Hardware Platform: HP 9000/730-785

Target Operating System: UNIX (HP-UX) Version: B.10.20

Installation Test Record No.: 1123-00-3005.03-303; YC-247, Rev. 0 (2/14/92)

Type of analysis software was used for (e.g., steel design, dynamic analysis, concrete design, code checks, etc.):
Source term generation and depletion code (activation products, fission products, and actinides)

*Pre-Use Verification: JH Software Name: DIDOS-V Version: 1.0

Target Hardware Platform: HP 9000/730-785

Target Operating System: UNIX (HP-UX) Version: B.10.20

Installation Test Record No.: 1123-00-3005.03-382; YC-387, Rev. 0 (6/30/98)

Type of analysis software was used for (e.g., steel design, dynamic analysis, concrete design, code checks, etc.):
Point -Kernel Shielding Code for Cylindrical Sources

*Pre-Use Verification: JH Software Name: ELISA-2 Version: 2.1

Target Hardware Platform: HP 9000/730-785

Target Operating System: UNIX (HP-UX) Version: B.10.20

Installation Test Record No.: 1123-00-3005.03-452

Type of analysis software was used for (e.g., steel design, dynamic analysis, concrete design, code checks, etc.):
Radiological Impact Assessment – Design-Basis Accidents – Classical & Alternative Source Term Methodologies

* Review software capabilities and open error notices, ensure installation test completed and access control satisfied, and provide initials per DPR-3.5.

DESIGN VERIFICATION METHOD

- ☒ Design Review
☐ Alternate Calculation
☐ Qualification Testing

QA CONDITION

- ☒ QA Condition 1
☐ QA Condition 2
☐ QA Condition 3
☐ QA Condition 4

SOFTWARE REVIEW CRITERIA

- | YES | N/A | ITEM |
|-------------------------------------|-------------------------------------|--------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Software Capabilities Reviewed |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Open Error Notices Reviewed |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Software Used Correctly |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Software Results Documented |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Key Program Features Recorded |

Preparer(s): John N. Hamawi
(First, MI, Last) PRINTED/TYPED NAME

John N. Hamawi
SIGNATURE

7/6/01
DATE

Verifier(s): John DiStefano
(First, MI, Last) PRINTED/TYPED NAME

John DiStefano
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7/6/01
DATE

Approver(s): R. B. Harvey, Jr.
(First, MI, Last) PRINTED/TYPED NAME

R B Harvey
SIGNATURE

7/6/01
DATE

6.1.3 Results

The design input from Sec. 5 and other data from Secs. 6.1.1 and 6.1.2 were provided as input to ORIGEN-2 for computation of the various inventories. The approach employed is as described in Sec. 3.2.1. The ORIGEN-2 outputs appear in Attachment B, and consist of the following:

- Case A: Core-average assembly - 3.0 wt % U-235, 40 GWD/MTU max
- Case B: Core-average assembly - 4.5 wt % U-235, 40 GWD/MTU max
- Case C: Peak-power assembly - 3.0 wt % U-235, 62 GWD/MTU max
- Case D: Peak-power assembly - 4.5 wt % U-235, 62 GWD/MTU max

Summaries of the ORIGEN-2 results for the radionuclides of interest (halogens, noble gases and alkali metals) appear in Tables 6.1 through 6.4 for the four cases analyzed, respectively. It is noted that the last column in each table lists the maximum assembly inventory for each radionuclide for that particular ORIGEN-2 run. The last columns from Tables 6.1 and 6.2 were then multiplied by the radial peaking factor of 1.7 to simulate the peak-powered assembly. The adjusted results are presented in Table 6.5, along with the last columns from Tables 6.3 and 6.4 for the peak-power assembly as analyzed; the worst-case (bounding) inventory for each radionuclide is identified. Finally, the bounding inventories were multiplied by the gap fractions from Table 5.2, Item #3, to compute the gap activities for use in the radiological analyses. The results appear in Table 6.6.

Note that Table 6.6 includes all the noble gases, halogens and alkali metals which form part of the ELISA-2 data library, and for which dose conversion factors are available in the Federal Guidance Reports (Refs. 7 and 8). Also note that the alkali metals would be retained by the water in the reactor cavity and would not lead to any doses at the receptors of interest. They have been included in the tables for completeness, since they could affect the direct-shine radiation fields around the cavity, after the nobles and airborne iodines are released to the atmosphere. Computation of these radiation fields is outside the scope of the present calculation.

Table 6.5

Summary of ORIGEN-2 Runs - Inventories for Various Enrichments and Worst-Case Burnups

Radionuclide	Assembly Inventory (Ci) for FHA Analyses					Max Ratio (Bndg/Other)
	Case A*1.7	Case B*1.7	Case C	Case D	Bounding	
BR 82	5.054E+03	4.393E+03	8.383E+03	8.207E+03	8.383E+03	1.91
BR 83	1.071E+05	1.088E+05	1.045E+05	1.061E+05	1.088E+05	1.04
BR 84	1.955E+05	2.011E+05	1.891E+05	1.954E+05	2.011E+05	1.06
KR 83M	1.071E+05	1.087E+05	1.044E+05	1.061E+05	1.087E+05	1.04
KR 85	8.135E+03	9.161E+03	6.805E+03	7.714E+03	9.161E+03	1.35
KR 85M	2.416E+05	2.501E+05	2.334E+05	2.427E+05	2.501E+05	1.07
KR 87	4.803E+05	5.012E+05	4.613E+05	4.849E+05	5.012E+05	1.09
KR 88	6.786E+05	7.081E+05	6.517E+05	6.851E+05	7.081E+05	1.09
KR 89	8.514E+05	8.932E+05	8.139E+05	8.622E+05	8.932E+05	1.10
KR 90	8.461E+05	8.889E+05	8.078E+05	8.573E+05	8.889E+05	1.10
RB 86	1.870E+03	1.719E+03	3.070E+03	3.169E+03	3.169E+03	1.84
RB 86M	1.952E+02	1.754E+02	2.985E+02	3.036E+02	3.036E+02	1.73
RB 88	6.858E+05	7.147E+05	6.590E+05	6.919E+05	7.147E+05	1.08
RB 89	8.900E+05	9.297E+05	8.539E+05	8.993E+05	9.297E+05	1.09
RB 90	8.762E+05	9.190E+05	8.385E+05	8.875E+05	9.190E+05	1.10
RB 90M	1.879E+05	1.936E+05	1.825E+05	1.887E+05	1.936E+05	1.06
RB 91	1.055E+06	1.098E+06	1.014E+06	1.063E+06	1.098E+06	1.08
I128	1.367E+04	9.607E+03	2.644E+04	2.136E+04	2.644E+04	2.75
I129	3.116E-02	2.866E-02	2.846E-02	2.664E-02	3.116E-02	1.17
I130	3.596E+04	2.703E+04	6.714E+04	5.723E+04	6.714E+04	2.48
I131	7.050E+05	6.780E+05	7.273E+05	7.126E+05	7.273E+05	1.07
I132	1.007E+06	9.758E+05	1.041E+06	1.023E+06	1.041E+06	1.07
I133	1.448E+06	1.416E+06	1.455E+06	1.407E+06	1.455E+06	1.03
I134	1.612E+06	1.587E+06	1.613E+06	1.572E+06	1.613E+06	1.03
I135	1.346E+06	1.318E+06	1.352E+06	1.308E+06	1.352E+06	1.03
XE131M	7.876E+03	7.562E+03	8.147E+03	7.939E+03	8.147E+03	1.08
XE133	1.445E+06	1.414E+06	1.448E+06	1.402E+06	1.448E+06	1.03
XE133M	4.388E+04	4.301E+04	4.492E+04	4.442E+04	4.492E+04	1.04
XE135	4.252E+05	5.165E+05	2.844E+05	3.566E+05	5.165E+05	1.82
XE135M	2.825E+05	2.710E+05	2.929E+05	2.867E+05	2.929E+05	1.08
XE138	1.277E+06	1.277E+06	1.266E+06	1.257E+06	1.277E+06	1.02
CS132	2.224E+02	1.894E+02	3.544E+02	3.398E+02	3.544E+02	1.87
CS134M	4.706E+04	4.010E+04	7.560E+04	7.252E+04	7.560E+04	1.89
CS134	1.875E+05	1.580E+05	2.558E+05	2.359E+05	2.558E+05	1.62
CS135M	3.276E+04	2.259E+04	9.124E+04	7.659E+04	9.124E+04	4.04
CS135	4.189E-01	4.862E-01	2.886E-01	3.120E-01	4.862E-01	1.68
CS136	5.311E+04	4.857E+04	7.129E+04	6.904E+04	7.129E+04	1.47
CS137	9.838E+04	9.816E+04	9.015E+04	8.990E+04	9.838E+04	1.09
CS138	1.391E+06	1.384E+06	1.384E+06	1.366E+06	1.391E+06	1.02

Table 6.6
Assembly Bounding Source Term for FHA Analysis

Radionuclide	Bounding Inventory (Ci) [from Table 6.5]	AST Methodology		Classical Methodology	
		Gap Fraction	Gap Invent. (Ci)	Gap Fraction	Gap Invent. (Ci)
BR 82	8.383E+03	0.05	4.192E+02	0.10	8.383E+02
BR 83	1.088E+05	0.05	5.438E+03	0.10	1.088E+04
BR 84	2.011E+05	0.05	1.006E+04	0.10	2.011E+04
KR 83M	1.087E+05	0.05	5.437E+03	0.10	1.087E+04
KR 85	9.161E+03	0.10	9.161E+02	0.30	2.748E+03
KR 85M	2.501E+05	0.05	1.250E+04	0.10	2.501E+04
KR 87	5.012E+05	0.05	2.506E+04	0.10	5.012E+04
KR 88	7.081E+05	0.05	3.540E+04	0.10	7.081E+04
KR 89	8.932E+05	0.05	4.466E+04	0.10	8.932E+04
KR 90	8.889E+05	0.05	4.445E+04	0.10	8.889E+04
RB 86	3.169E+03	0.12	3.803E+02	0.00	0.000E+00
RB 86M	3.036E+02	0.12	3.643E+01	0.00	0.000E+00
RB 88	7.147E+05	0.12	8.576E+04	0.00	0.000E+00
RB 89	9.297E+05	0.12	1.116E+05	0.00	0.000E+00
RB 90	9.190E+05	0.12	1.103E+05	0.00	0.000E+00
RB 90M	1.936E+05	0.12	2.324E+04	0.00	0.000E+00
RB 91	1.098E+06	0.12	1.317E+05	0.00	0.000E+00
I128	2.644E+04	0.05	1.322E+03	0.10	2.644E+03
I129	3.116E-02	0.05	1.558E-03	0.10	3.116E-03
I130	6.714E+04	0.05	3.357E+03	0.10	6.714E+03
I131	7.273E+05	0.08	5.818E+04	0.12	8.728E+04
I132	1.041E+06	0.05	5.205E+04	0.10	1.041E+05
I133	1.455E+06	0.05	7.275E+04	0.10	1.455E+05
I134	1.613E+06	0.05	8.065E+04	0.10	1.613E+05
I135	1.352E+06	0.05	6.760E+04	0.10	1.352E+05
XE131M	8.147E+03	0.05	4.074E+02	0.10	8.147E+02
XE133	1.448E+06	0.05	7.240E+04	0.10	1.448E+05
XE133M	4.492E+04	0.05	2.246E+03	0.10	4.492E+03
XE135	5.165E+05	0.05	2.582E+04	0.10	5.165E+04
XE135M	2.929E+05	0.05	1.465E+04	0.10	2.929E+04
XE138	1.277E+06	0.05	6.385E+04	0.10	1.277E+05
CS132	3.544E+02	0.12	4.253E+01	0.00	0.000E+00
CS134M	7.560E+04	0.12	9.072E+03	0.00	0.000E+00
CS134	2.558E+05	0.12	3.070E+04	0.00	0.000E+00
CS135M	9.124E+04	0.12	1.095E+04	0.00	0.000E+00
CS135	4.862E-01	0.12	5.834E-02	0.00	0.000E+00
CS136	7.129E+04	0.12	8.555E+03	0.00	0.000E+00
CS137	9.838E+04	0.12	1.181E+04	0.00	0.000E+00
CS138	1.391E+06	0.12	1.670E+05	0.00	0.000E+00