


ENCLOSURE 3

C-200, OFFSITE DOSE CALCULATION MANUAL
REVISION 48 (PCR 2184721) AND REVISION 49 (PCR 2137189)
CHANGE PAGES
(4 PAGES includes blank page)

FOR INFORMATION ONLY

Before use, verify revision and change documentation (if applicable) with a controlled index or document.

DATE VERIFIED _____ INITIAL _____

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|---|--|---|
|  FPL | <h1 style="margin: 0;">ST. LUCIE PLANT</h1> <h2 style="margin: 5px 0 0 0;">CHEMISTRY OPERATING PROCEDURE</h2> <p style="margin: 0;">SAFETY RELATED REFERENCE USE</p> | Procedure No. <div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 5px auto; display: flex; align-items: center; justify-content: center;"> C-200 </div> Current Revision No. 48 |
|---|--|---|

Title: **OFFSITE DOSE CALCULATION MANUAL (ODCM)**

Responsible Department: **CHEMISTRY**

REVISION SUMMARY:

NOTE
All changes to this procedure require an Emergency Preparedness Review.

- Revision 48** – Incorporated PCR 2184721 to add note to cover page ensuring that changes to the ODCM are reviewed by EP. (Author: N. Davidson)
- Revision 47** - Incorporated PCR 2174317 to correct location on map in the AREOR. (Author: N. Davidson)
- Revision 46** - Incorporated PCR 2146572 to update procedure number reference. (Author: N. Davidson)
- Revision 45** - Incorporated PCR 2067790 for addition of Unit 1 and 2 containment-equipment hatch monitoring as potential effluent pathways during outages. (Author: J. Hunt)
- Revision 44** - Incorporated PCR 1974178 to implement changes documented in EC 277011 for replacement of U1 PV Radiation Monitor. Updated monitor channel IDs. The new U1 PV Mirion MGP Radiation Monitor does not have a particulate, iodine, or mid range gas detector channel. (Author: J. Hunt)

| Revision | Approved By | Approval Date | UNIT # |
|----------|-------------|---------------|----------|
| 0 | C.M. Wethy | 04/27/82 | DATE |
| | | | DOCT |
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| | | | SYS |
| | | | STATUS |
| | | | REV |
| | | | # OF PGS |



FPL

ST. LUCIE PLANT

CHEMISTRY OPERATING PROCEDURE

SAFETY RELATED
REFERENCE USE

Procedure No.

C-200

Current Revision No.

49

FOR INFORMATION ONLY

Before use, verify revision and change documentation
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DATE VERIFIED _____ INITIAL _____

Title:

OFFSITE DOSE CALCULATION MANUAL (ODCM)

Responsible Department: **CHEMISTRY**

REVISION SUMMARY:

NOTE

All changes to this procedure require an Emergency Preparedness Review.

Revision 49 - Incorporated PCR 2137189 per EC 278372 to update values in Methodology Section. (Author: T. Bertolini)

Revision 48 - Incorporated PCR 2184721 to add note to cover page ensuring that changes to the ODCM are reviewed by EP. (Author: N. Davidson)

Revision 47 - Incorporated PCR 2174317 to correct location on map in the AREOR. (Author: N. Davidson)

Revision 46 - Incorporated PCR 2146572 to update procedure number reference. (Author: N. Davidson)

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PROCEDURE

C-200

COMPLETED

49

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METHODOLOGY SECTION

2.2 Determining the Total Body and Skin Dose Rates for Noble Gas Releases And Establishing Setpoints for Effluent Monitors (continued)

1. (continued)

C. (continued)

Unit 2 Fuel Building:

The 10,000 cpm High Setpoint is based on an Infant's Maximum Exposed Organ Dose Rate (Liver) from Inhalation of Cs-137 at the Site Boundary. The value of 10,000 cpm is very conservative relative to the site dose rate limit of 1500 mrem/yr. The methodology is based on measured particulate channel count rates when the detector was calibrated with a known source activity of Cs-137, and on default assumptions as follows:

1. The particulate channel read 39,782 cpm when exposed to a 7.59 uCi source of Cs-137 (decayed to June 19, 1996 data).
2. Assuming that 7.59 uCi of Cs-137 were collected during 1 hour of skid sample collection (fixed filter), the typical sample volume would yield 4.08E+06 cc's. Greater than 99% sample filter efficiency is assumed.
3. The maximum building process flow exhaust is ~31,584 cfm.
4. Q(dot) for Cs-137 uCi/sec release rate is approximately 21 uCi/sec as follows:

$$\frac{7.59 \text{ uCi}}{\text{hour}} \times \frac{\text{hour}}{4.08E+06 \text{ cc.s}} \times \frac{28317 \text{ cc's}}{\text{ft}^3} \times \frac{31584 \text{ ft}^3}{\text{min}} \times \frac{\text{min}}{60 \text{ sec}} = \frac{27.72 \text{ uCi}}{\text{sec}}$$

5. The default historical (X/Q)d for the worst sector (NW) at the site boundary is 1.3E-06 meters/sec.
6. The dose rate (equivalent to 10,000 cpm) is calculated per ODCM Section 2.3 Inhalation Dose Rate to an Infant. The resulting dose rates yield.

| | | | | | | |
|----------|----------|---------|----------|----------|---------|----------|
| Bone | Liver | Thyroid | Kidney | Lung | GI-LLI | W.Body |
| mrem/yr | mrem/yr | mrem/yr | mrem/yr | mrem/yr | mrem/yr | mrem/yr |
| 6.21E+00 | 6.62E+00 | 0E+00 | 3.52E+00 | 8.56E+00 | 1.2E+00 | 3.99E+00 |