

## EXIT Calculations for Iodine-131 Therapy

PATIENT NAME: [REDACTED]

DATE OF BIRTH: [REDACTED]

MEDICAL RECORD NUMBER: 169551

DATE OF ADMINISTRATION: 6/7/2012

AMOUNT ADMINISTERED: 102.0mCi

### CALCULATION TERMS:

Occupancy factor = fraction of time exposed individual is assumed to be within the average distance chosen,

F1 = fraction of total administered activity associated with effective half-time  $T_{eff-1}$ ,

F2 = fraction of total administered activity associated with effective half-time  $T_{eff-2}$ .

### 2. <sup>131</sup>I-Sodium Iodide (NaI) - Thyroid Cancer Patients

Occupancy Factor 0.25

F1 (extra-thyroidal) 0.95

F2 (thyroid) 0.05

$T_{eff-1}$  (extra-thyroidal) 0.32 days

$T_{eff-2}$  (thyroid) 7.3 days

Activity (mCi) 102

Average distance (m): 1

OK

Clear

Total dose estimated for this exposure:

For exposure to 102 mCi of I-131 radiation to an individual at 1 meters, the estimated total amount of radiation received is 1.1 mSv or 1.1e+2 mrem. Input data: Occupancy Factor =0.25, F1=0.95, F2=0.05,  $T_{eff1}$ =0.32 days,  $T_{eff2}$ =7.3 days. This might have occurred due to a uniform whole body exposure of 129 days of exposure to natural background radiation.

Calculations performed are based on the Health Physics Journal article "Licensee Over-Reliance on Conservatism in NRC Guidance Regarding the Release of Patients Treated with <sup>131</sup>I", Health Phys. 93(6):667- 677; 2007), and done using the online RADAR Patient Exposure Radiation Dose Calculator found at <http://www.doseinfo-radar.com/ExposureCalculator.html>

Calculated Radiation Amount: 1.1 mSv

NOTE: Patient is reliable if the total amount of radiation received is <5.0mSv

Nuclear Medicine Tech: \_\_\_\_\_

Date: \_\_\_\_\_

Authorized User: \_\_\_\_\_

Date: \_\_\_\_\_