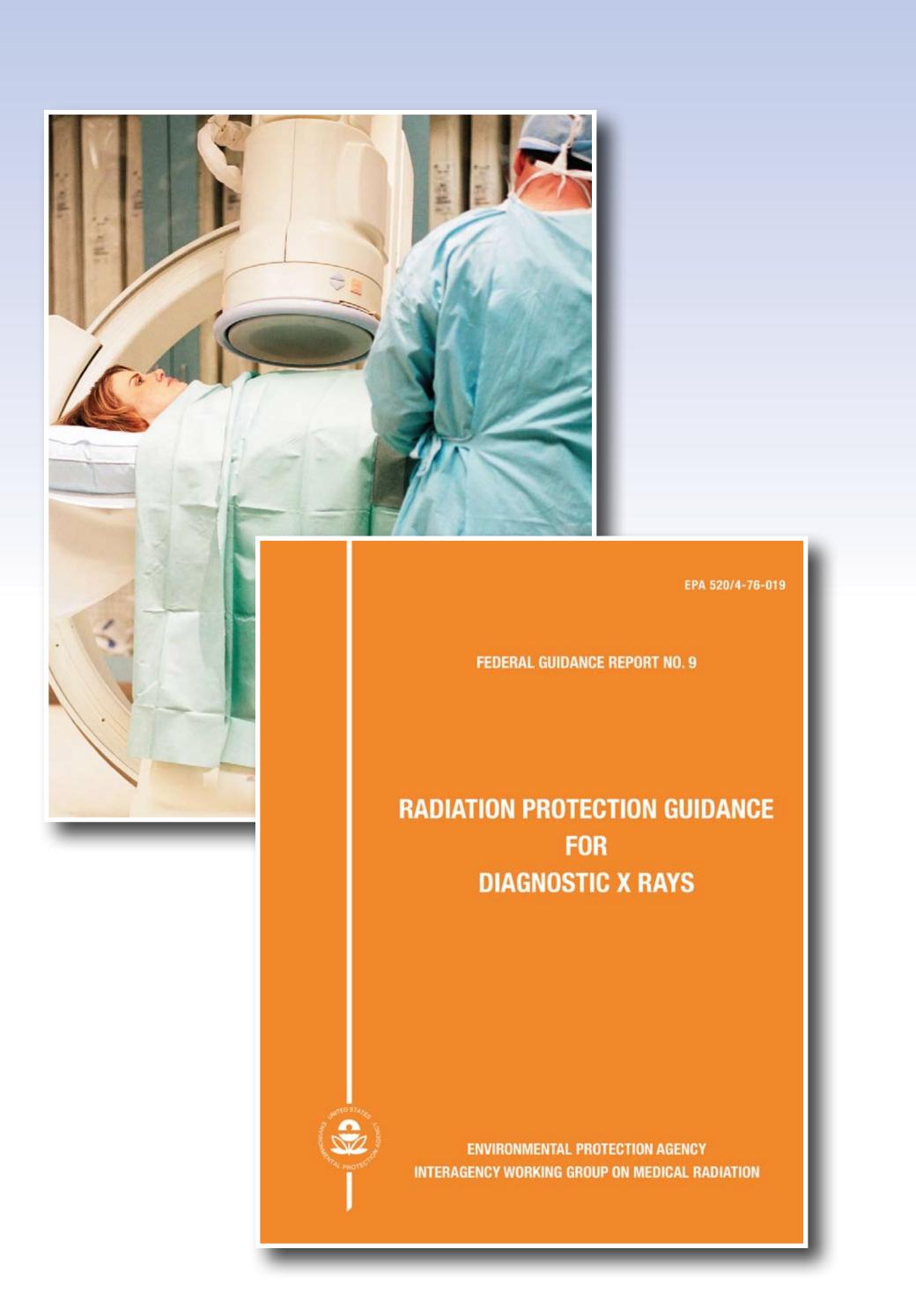
Federal Guidance Series: Dose and Risk Management Tools for State Radiation Programs

CONTROLLING MEDICAL X-RAYS NCRP REPORT 160 (2009) Space (background) 5% Internal (background) 5% Terrestrial (background) 3% Computed tomography (medical) 24% Nuclear medicine (medical) 12% Interventional fluoroscopy (medical) 7% Conventional radiography fluoroscopy (medical) 5%



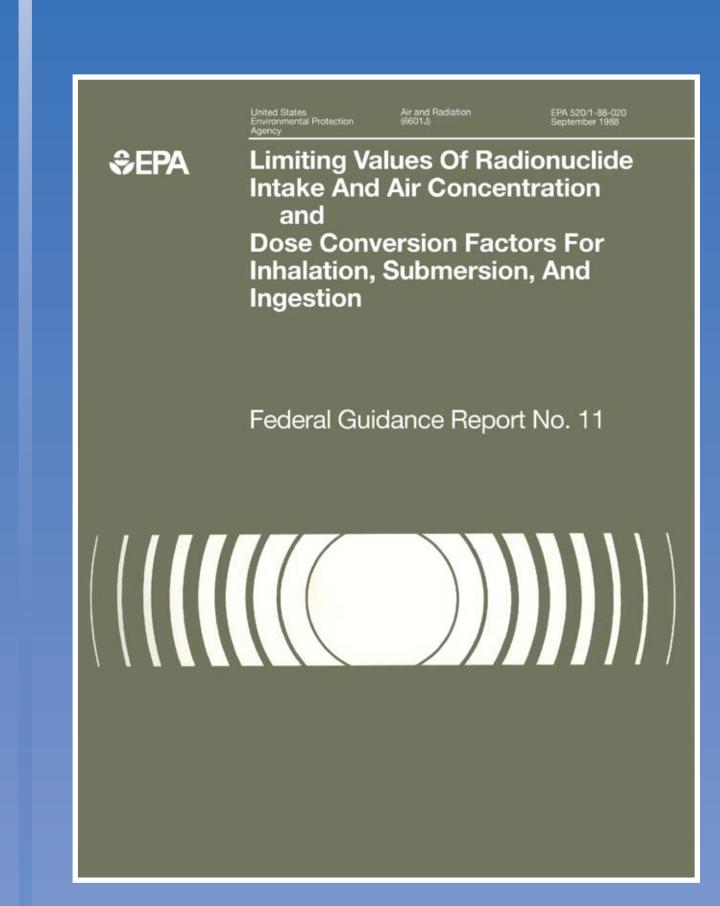
FGR 9 (1976)

- Addresses:
- Diagnostic x-ray procedures
- Film image quality (technique)
- Keeping operator doses ALARA

Update (early 2010?):

- Reflects new digital imaging technology
- Includes diagnostic and interventional procedures
- Addresses CT usage (opportunistic screening; pediatric doses)

RADIATION DOSE ASSESSMENTS



External Exposure To

Air, Water, And Soil

FGR 11 (1988):

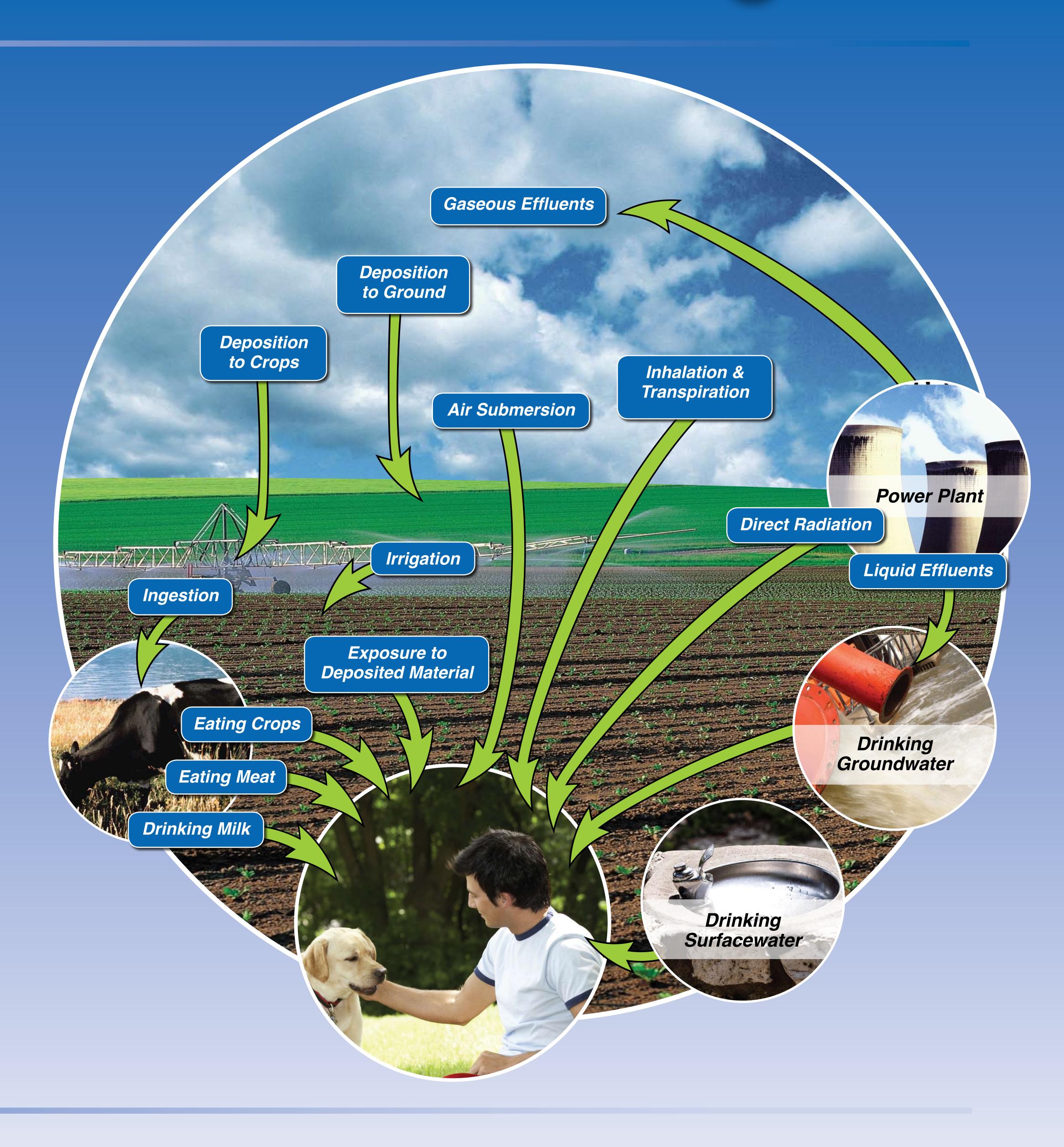
- Inhalation and ingestion dose conversion factors (DCFs)
- Based on ICRP 26 dosimetry (1975)
- Used for compliance with ICRP 26 based regulations (e.g. 10 CFR 20)
- Based on "Reference Man" (for adult workers)

FGR 12 (1993):

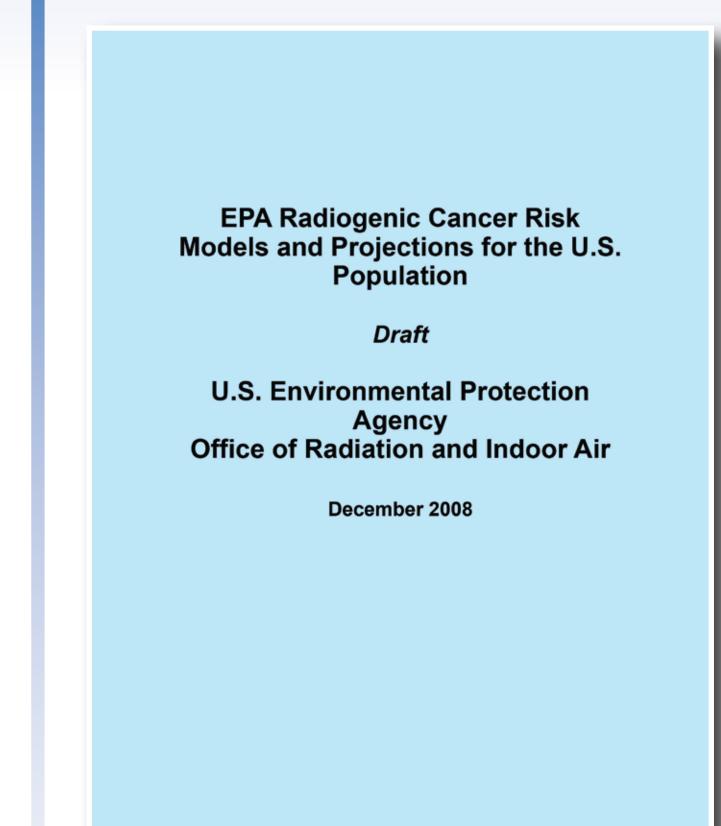
- Provides dose conversion factors for external radiation sources
- Surface soil contamination
- Various depths of volume soil contamination
- Dose coefficients for water immersion
- Dose coefficients for air submersion



- Whether to use ICRP 60 or ICRP 103
- Whether to provide gender-specific occupational DCFs
- Whether to publish age- and gender-specific DCFs

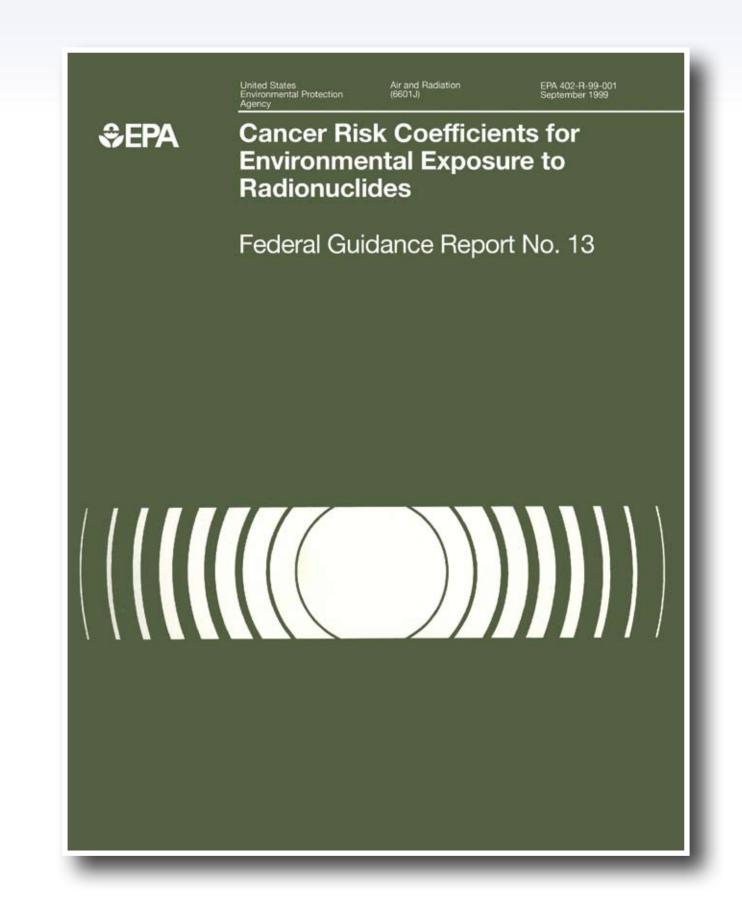


HUMAN HEALTH RISK ASSESSMENTS



FGR 13 (1999):

- Provides age-averaged cancer risk coefficients for over 800 radionuclides
- Separate coefficients for food and water ingestion, inhalation and external exposure
- Estimates excess cancer risk following chronic exposure to radionuclides



Process for Updating FGR 13:

- NAS BEIR VII provided EPA with updated information on radiogenic cancer risk
- EPA's White Paper outlined approach for updating the "Blue Book" (Estimating Radiogenic Cancer Risks)
- SAB advisory on White Paper
 January 2008
- Draft revised "Blue Book" now under SAB review
- Update to FGR 13 ~ 2-3 years away

