

# Dose Reconstruction Process Overview

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# Dose Reconstruction Process

Receive Claim from DOL

Request Data from DOE and Review Upon Receipt

Conduct Interview

*Interview  
Report  
to Claimant*

Conduct Dose Reconstruction

*Draft Dose  
Reconstruction  
Report to  
Claimant*

Closeout Interview

*Receive Signed  
OCAS-1*

Prepare Analysis Record

Send Analysis Record to DOL

# Frequently Used Terms

- **External dose is dose received from radiation originating outside of the body**
- **Internal dose is dose received from radiation originating inside the body**

# **Frequently Used Terms – continued**

## **Occupational Medical Dose**

- **Includes diagnostic X-rays required as a condition of employment**
- **Does not include X-rays resulting from illness or injury, diagnostic X-rays performed for diagnosis of illness, or dose resulting from nuclear medicine tests or radiation therapy**

# Frequently Used Terms – continued

## Environmental Dose

- The dose measured on and around these facilities
- Includes external radiation as well as airborne radioactivity
- Most useful in cases where no dosimetry records exist

# Frequently Used Terms – continued

- **Overestimate**
- **Best Estimate**
- **Underestimate**
- **Partial Estimate**

# Basics of Dose Reconstruction

- Use all available worker and workplace information to reconstruct dose
- Evaluate all doses of record for data quality shortcomings
- Evaluate potential for undetected dose
- Use recommendations established by national and international organizations

# Basics of Dose Reconstruction – continued

- Prefer to use individual monitoring data if available and of sufficient quality
- Use standard tools to evaluate “missed dose”
- Rely on use of area dosimeters, radiation surveys, and air sampling if individual data is not available
- If no monitoring data, then use available data on source term, etc.



## **Basics of Dose Reconstruction** – continued

- **Annual organ doses will be computed from date of first employment (as verified by DOL) to date of diagnosis**
- **When possible, provide an estimate of uncertainty**
- **Dose output will be compatible with the probability of causation software (IREP)**

# **Basics of Dose Reconstruction** – continued

**When individual dose monitoring results are not available, doses can be estimated using:**

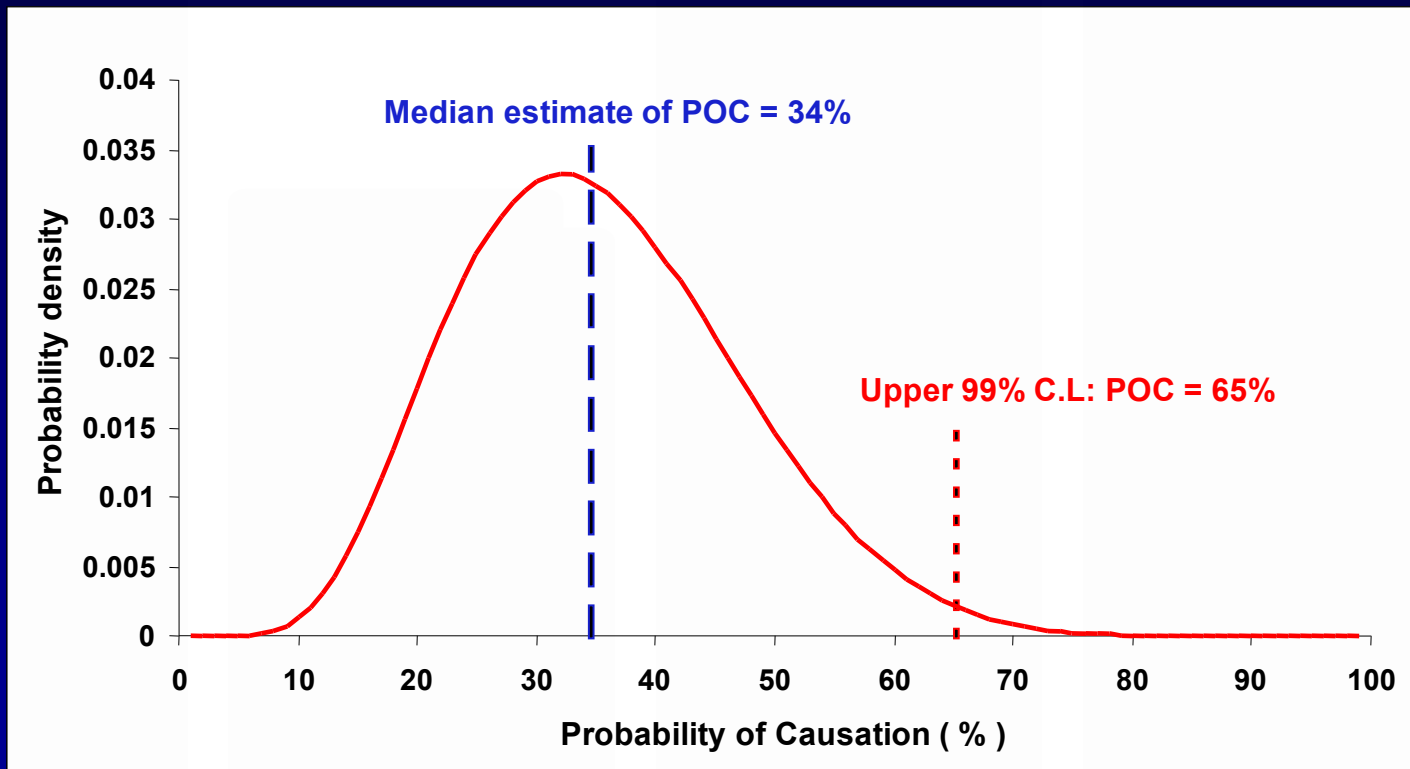
- **Coworker studies**
- **Surrogate data**
- **Source-term modeling**

# Claimant Favorable Approach

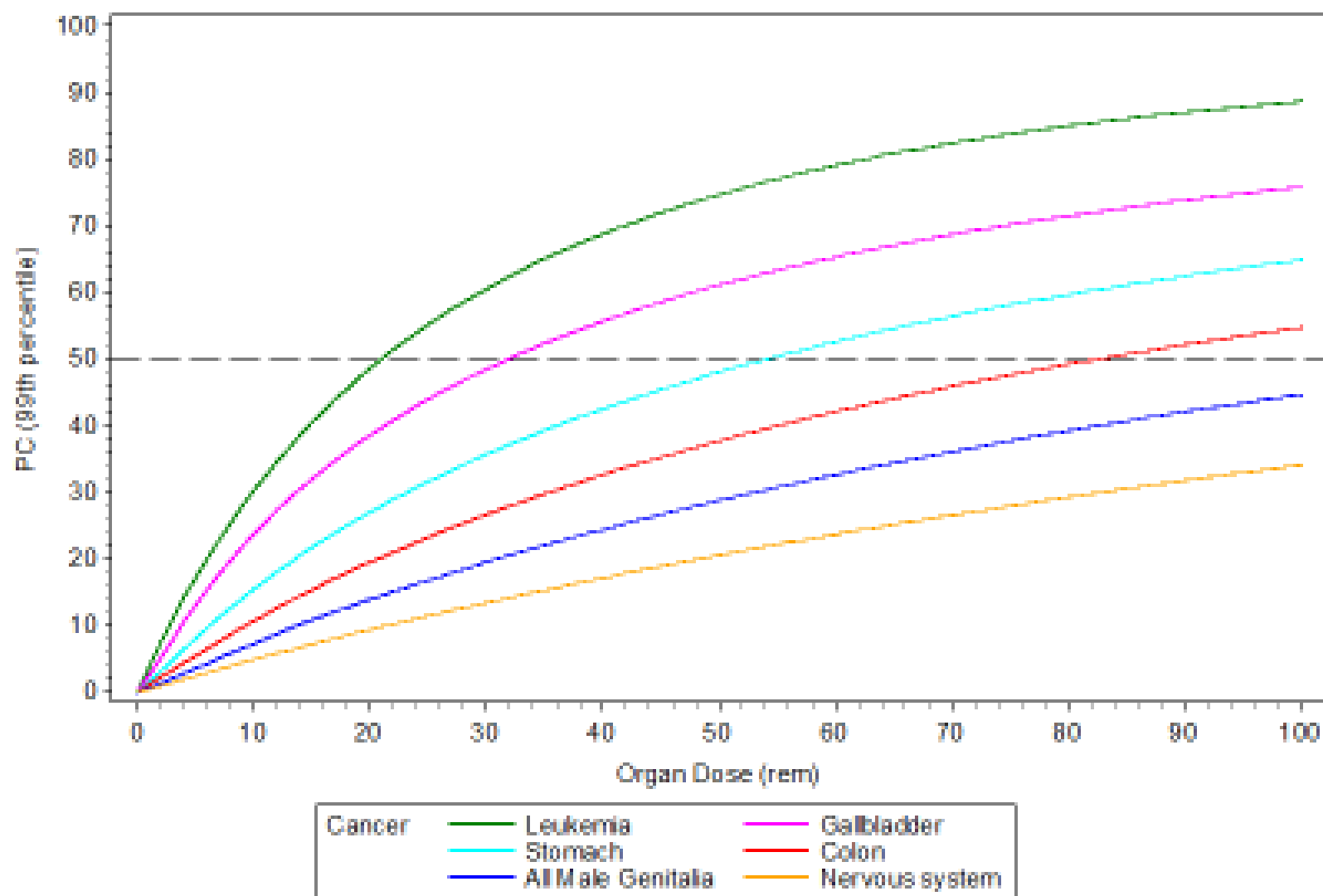
When a choice must be made between different approaches and there is no information about which approach is most technically accurate, NIOSH chooses the approach resulting in the highest probability of causation.

# Claimant Favorable Approach – continued

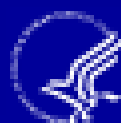
## Applying Credibility Limits



# PC Depends on Cancer



Inputs: Male, Age at Exposure = 30, Age at Diagnosis = 50, Acute Exposure to Gamma Radiation



# SEC Petitioning Process

- There are seven main phases that a petition will go through before it can be added as a new SEC class:
  - Petition submission
  - Qualification
  - Evaluation
  - Evaluation Report presented to the Advisory Board on Radiation and Worker Health (Advisory Board)
  - Advisory Board recommendation
  - Secretary of the Department of Health and Human Services (HHS) designation
  - Submission to Congress

# Who can file a petition?

- Former or current worker
- Survivor of a former worker
- Labor organization representing a worker or class
- Anyone authorized to represent any of the above

# SEC Petition Basis

- A description of the basis for believing records and information available are inadequate to estimate radiation doses based on one of the following:
  - Lack of monitoring
  - Destruction, falsification, or loss of records
  - Expert report
  - Scientific or technical report



# Review of SEC Petitioning Process

NIOSH receives or initiates petition

NIOSH qualifies petition

NIOSH evaluates petition (180 days)



*Sends evaluation  
report to Board*

NIOSH presents evaluation report to the Advisory Board



*Possible review  
by Board's  
contractor*

Advisory Board sends recommendation to Secretary HHS (21 days)

HHS Secretary's final decision to Congress (30 days)

Decision is final (30 days)



*If class is added, then  
claims go to DOL*



*If class is not added, then petitioner  
can appeal the final decision*

# IT Modernization

## Discovery

- NIOSH discovered potential security vulnerabilities in DCAS systems in May of 2021
- Existing systems for processing dose reconstructions and SEC petitions were shut down
- This was done without warning to not bring attention to any vulnerabilities
- There were no known breaches of data of any kind

# IT Modernization

## Path Forward

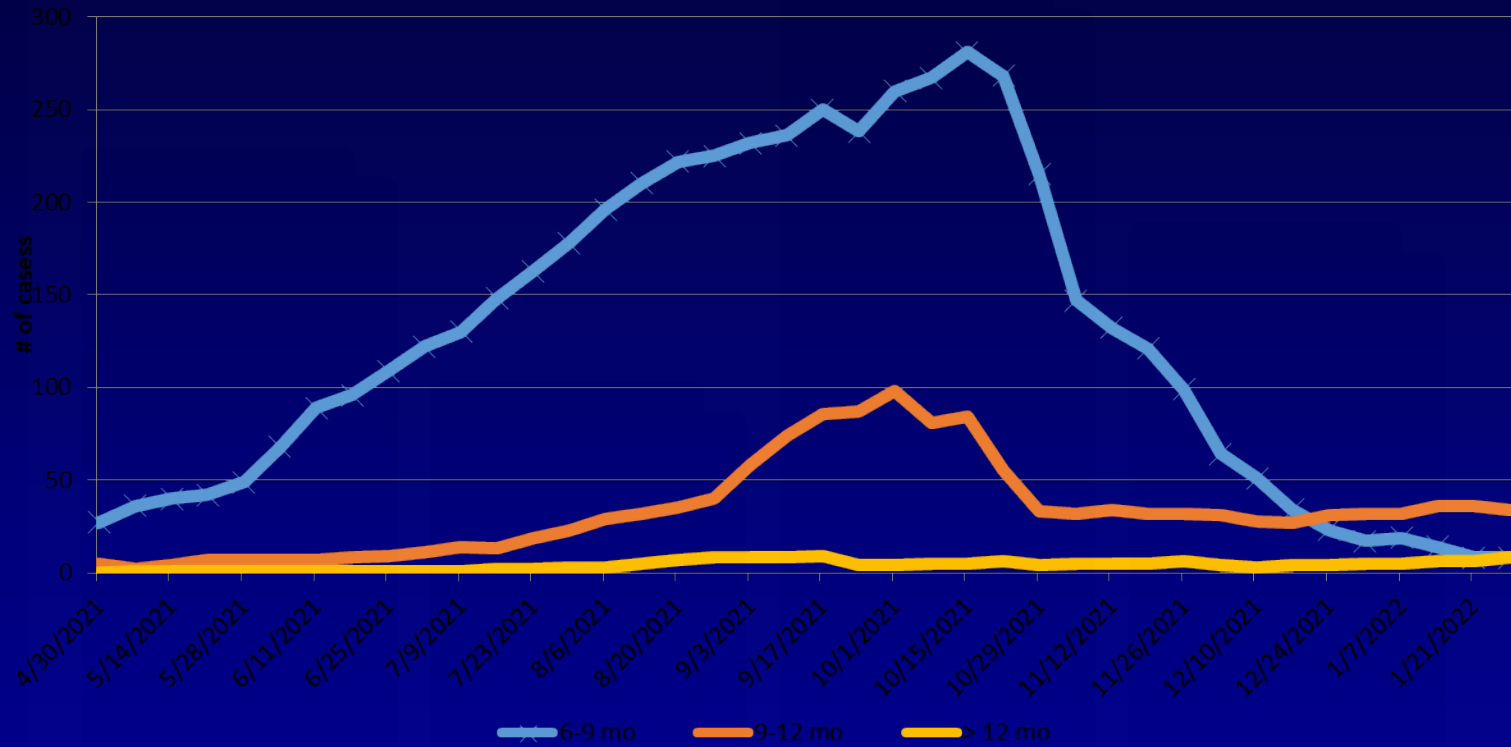
- A Short-term solution is mostly in place and provides manual methods for completing dose reconstructions and Special Exposure Cohort (SEC) petition evaluations.
- Cases that built up when the pause started in May of 2021 have been mostly processed
- We will continue to add improvements to the short-term solutions to increase production and maintain quality control.

# IT Modernization

## Path Forward

- A long-term solution is in development and will provide a fully automated processes for completing dose reconstructions and Special Exposure Cohort (SEC) petition evaluations

## Age of Cases Since the Pause Began



This graph represents the amount of time a case resides with DCAS. The times are measured from the date the case is received from DOL to the date the draft dose reconstructions are sent to the claimants. DCAS goal has always been to complete dose reconstructions within 5 months of the receipt of the last data required for dose reconstruction. This data could be dosimetry data from DOE, claimant interviews or any requested clarifications. The age of cases increased

# General Information

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**Questions?**