



Dose Reconstruction and Special Exposure Cohort Process Overview

Lori Marion-Moss, BS, MBA

DR Lead Health Physicist

National Institute for Occupational Safety and Health

Division of Compensation Analysis and Support

Kansas City, MO

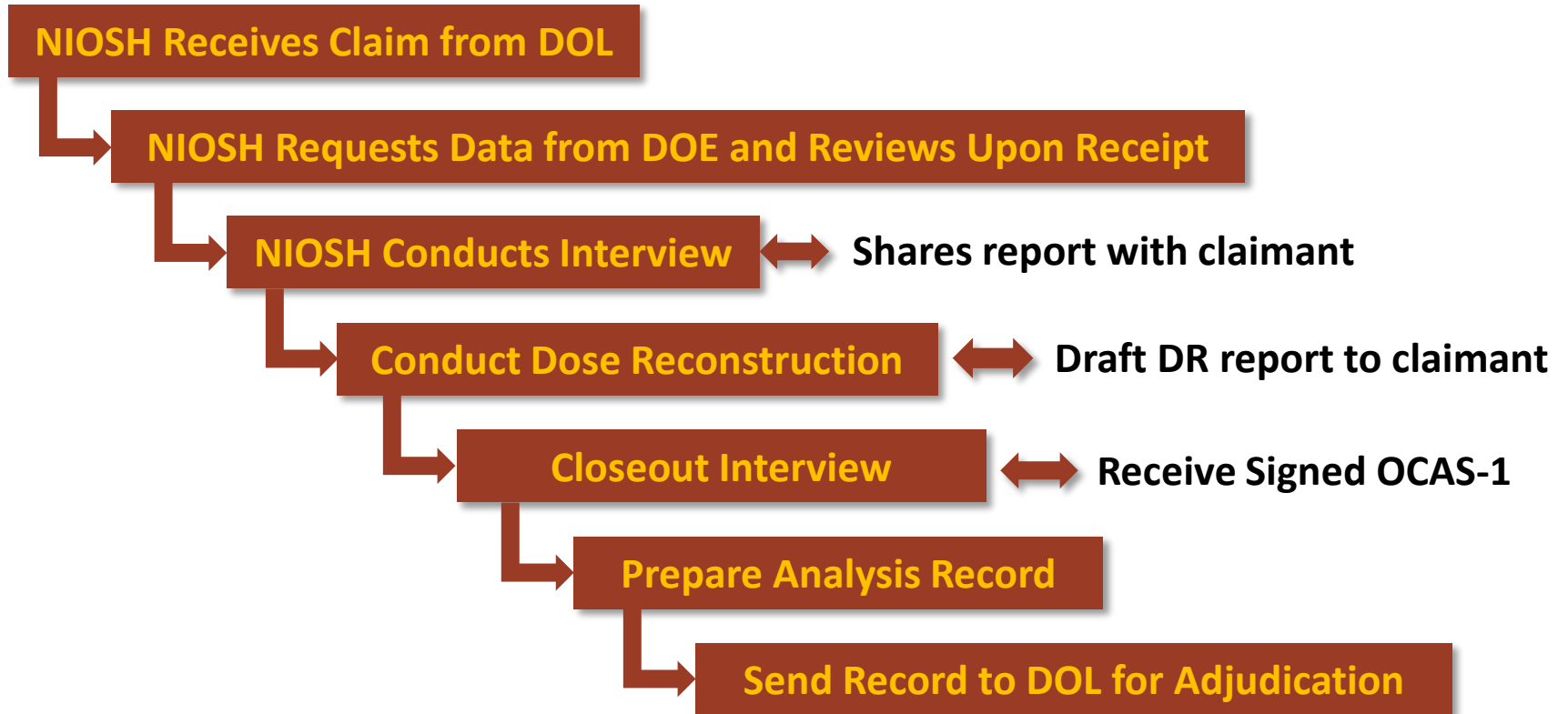
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NIOSH's Role Under EEOICPA

- Reconstructs Dose
- Develops methods to reconstruct dose
- Develops Probability of Causation methods
- Evaluates Special Exposure Cohort Petitions
- Supports the Advisory Board on Radiation and Worker Health (ABRWH)

Dose Reconstruction Process

Dose Reconstruction Process

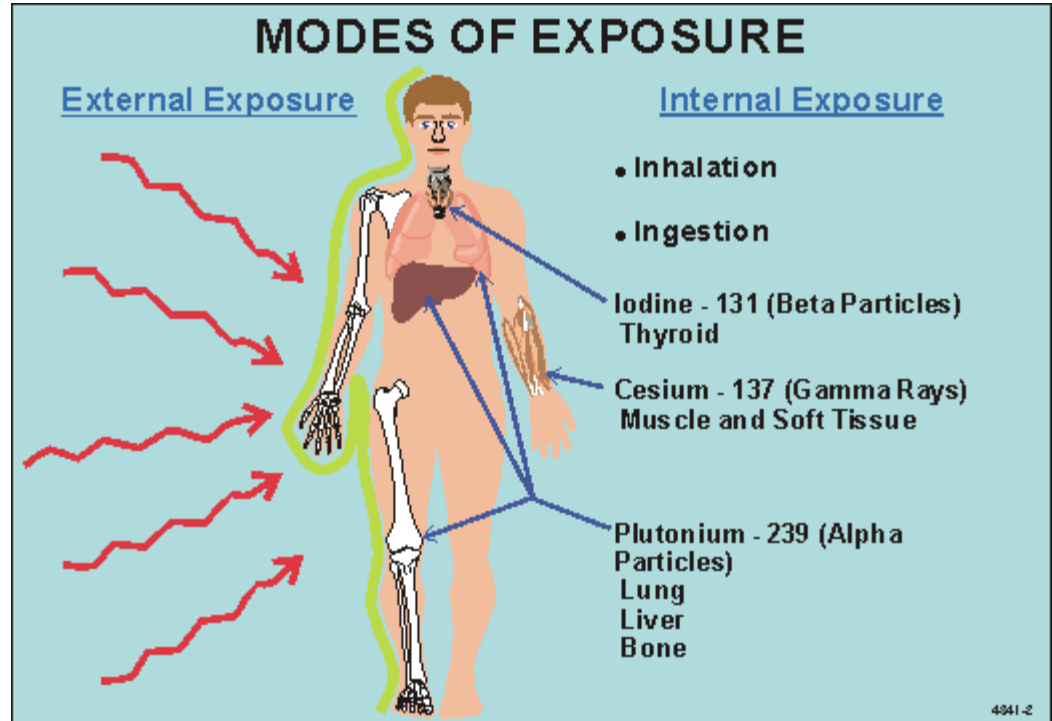


Claimant Interview

- Voluntary interview to provide additional details
- All questions are mailed to the claimants prior to the scheduled meeting
- We confirm the employment dates and cancer diagnoses provided by DOL
- We ask about any additional details of the type of work the EE performed:
 - What was worked with, how often, overtime?
 - What PPE was used?
 - What monitoring was performed?
 - Any involvement in radiological incidents?
- We ask about any known co-workers
- Report is returned to interviewee to review for accuracy

Frequently Used Terms

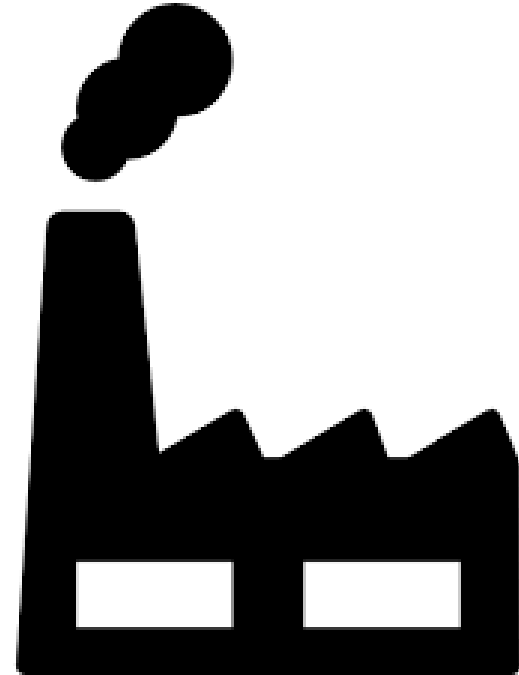
- External Dose: Dose received from radiation originating outside the body.
- Internal Dose: Dose received from radiation originating inside the body.



Frequently Used Terms - continued

Environmental Dose

- The dose measured on and around facilities
- Includes external and internal dose (airborne radioactivity)
- Used in some cases where no personnel dosimetry records exist



Frequently Used Terms - continued

- **Overestimate** – efficiency approach
- **Best Estimate** – detailed dose analysis
- **Underestimate** – efficiency approach
- **Partial Estimate** – parts of dose reconstruction infeasible (SEC)

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

Examples:

- Conservative dose conversion factors
- Addition of potential missed dose
- Solubility class of radionuclide for internal dosimetry calculations
- Composition of radionuclide mix (plutonium)
- Upper 99th percentile credibility limit to determine POC

Factors Impacting Dose Reconstructions

- **Time**
- **Claimant favorability**
- **Reasonable**
- **Special Exposure Cohort**

Basics of Dose Reconstruction – Data Hierarchy

- Individual radiation monitoring data
- Co-exposure data if necessary (exposure of other workers with same work history)
- Workplace radiation monitoring data (area monitoring, surrogate data)
- Workplace knowledge of radiation sources and processes

Basics of Dose Reconstruction - Methods

- Evaluate all doses of record for data quality shortcomings
- Evaluate potential for undetected dose (missed dose, unmonitored dose)
- Use recommendations established by national and international organizations

Basics of Dose Reconstruction - IREP

- Annual organ doses computed from date of first employment (as verified by DOL) to date of diagnosis
- Estimate of uncertainty if possible
- Dose output compatible with IREP (Interactive RadioEpidemiological Program) - probability of causation software
- DOL uses IREP in adjudicating claims under EEOICPA

Basics of Dose Reconstruction – Probability of Causation

- The Act set the guidelines for determining probability of causation (PC or PoC)
- Congress directed use of 1985 NIH cancer risk tables in judging radiation cancer claims
- 34 different cancer risk models in use
- Based on radiation cancer studies from epidemiologic research (A-bomb survivors and others)

Basics of Dose Reconstruction – Probability of Causation – cont.

- Calculated based on each claimant's unique situation
- Claim is compensable when POC is greater or equal to 50 %

SEC Petition Process

Overview

- A Special Exposure Cohort (SEC) is a designation given to a class of employees for whom sufficiently accurate dose reconstructions are not possible
 - Claims compensated under the SEC do not have to go through the dose reconstruction process
- Eligible members of the class include individuals who
 - Meet the class definition
 - Typically require 250 aggregate days at an SEC facility
 - Have one of the 22 specified cancers

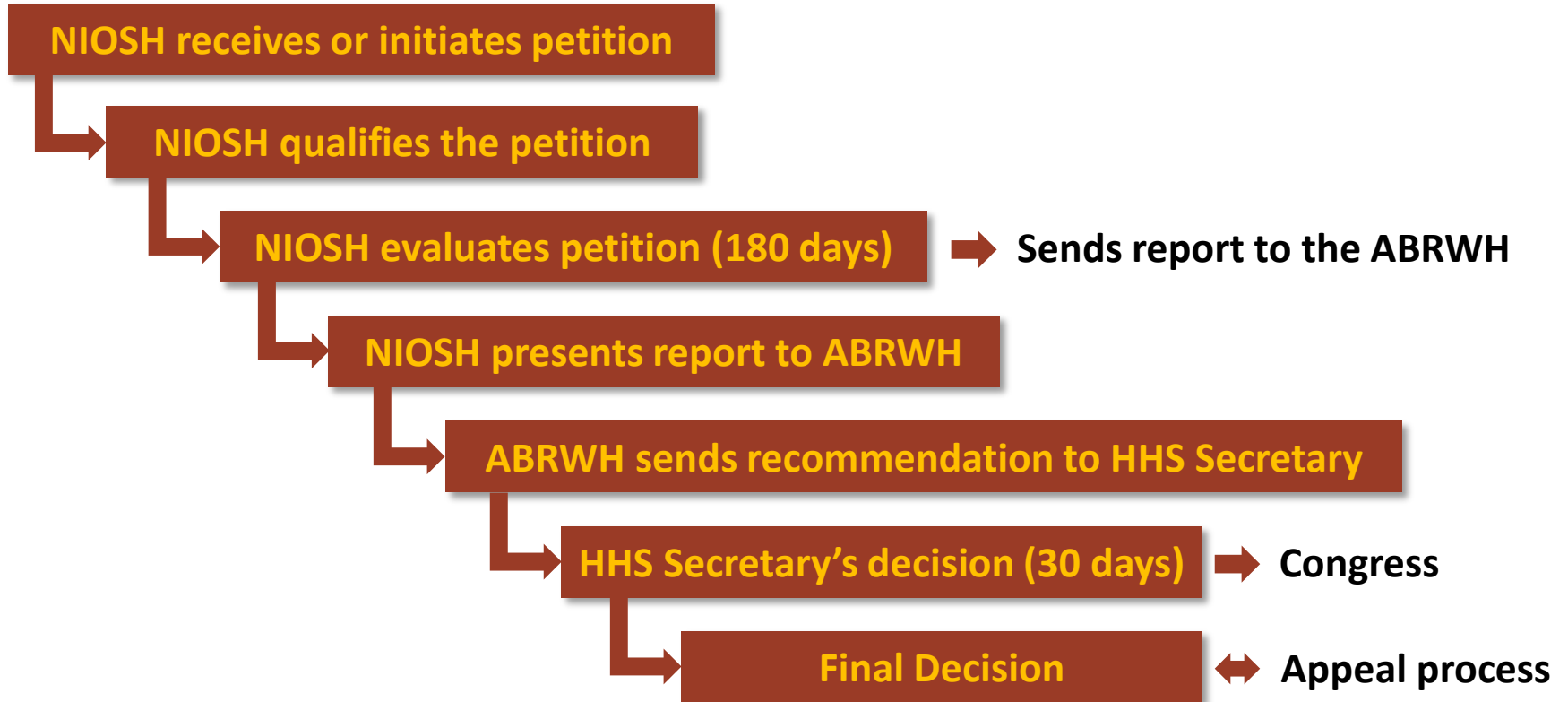
SEC petition process – Who can file a petition?

- 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 process – Petition Basis

- Description/Evidence/Affidavit of the basis that records are unavailable or inadequate to estimate radiation dose with sufficient accuracy.
- Based on:
 - Lack of monitoring
 - Destruction, falsification, or loss of records
 - Scientific or technical reports

Special Exposure Cohort Petitioning Process (42 CFR 83)



Cancers Covered by the SEC

Anytime

Bone cancer

Kidney cancer

Lung cancer (other than in-situ cancer that is discovered during or after a post-mortem exam)

Onset 2 Years after First Exposure

Leukemia (other than chronic lymphocytic leukemia)

Onset 5 Years after First Exposure

Multiple myeloma

Lymphomas (other than Hodgkin's disease)

Primary cancer of the:

- Bile ducts
- Brain
- Breast (female)
- Breast (male)
- Colon
- Esophagus
- Gall bladder
- Liver (except if cirrhosis or hepatitis B is indicated)
- Ovary
- Pancreas
- Pharynx
- Salivary gland
- Small intestine
- Stomach
- Thyroid
- Urinary bladder

NIOSH Information for Kansas City Plant

- Site Profile for the Kansas City Plant
 - ORAUT-TKBS-0031 Rev 01
- NIOSH has received approximately 1000 claims
- There are no SEC Classes for KCP
- SEC Petition-0210 (Qualified)
 - No class added

General Information

513-533-6825
dcas@cdc.gov

Josh Kinman
SEC Petition Counselor
Phone 513-533-6831
jkinman@cdc.gov

Denise Brock
NIOSH Ombudsman
636-856-0487 or 636-236-0932
CKO7@cdc.gov

DCAS Website

www.cdc.gov/niosh/ocas

Questions?

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

