

Development of the Hanford Site Profile



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Purpose of Meeting

- Discuss the Hanford Site Profile.
- Describe how the Site Profile is used.
- Ask for suggestions and information.
- Document concerns and issues.
- Answer questions.

Energy Employees

Occupational Illness

Compensation Program Act

(EEOICPA)

Department of Labor

Department of Health
and Human Services – NIOSH

Oak Ridge Associated
Universities Team

ORAU Team

- Oak Ridge Associated Universities
- Dade Moeller & Associates
- MJW Corporation
- Sub-contractors

ORAU Program Goals

- Protect claimant privacy.
- Build trust and confidence.
- Process claims accurately and efficiently.
- Avoid conflicts of interest.

Dose

Reconstruction

Occupational Radiation Dose

Occupational Medical Dose

Occupational Environmental Dose

Internal Dose

External Dose

Site Profiles Support Dose Reconstruction

- Used by dose reconstructors.
- Provide site-specific technical information.
- Minimize interpretation of data.
- Living document.

General Information

- Completed Site Profiles can be seen at <http://www.cdc.gov/niosh/ocas> .
- Comments are encouraged and should be sent to the NIOSH Docket Office.
- Meetings are being held with union representatives to encourage input.

Developing the Site Profile

- Document written by subject experts.
- Document reviewed by NIOSH and ORAU Team.
- Document approved for use by NIOSH and ORAU.

Developing the Site Profile

- Hanford Site Profile team was established in April 2003.
- Team leader is Ed Scalsky.
- Sections were written by different authors.
- Rev. 00 was completed October 15, 2003.
- Revisions are in progress.

Contents of Site Profile

- Purpose and Scope
- Site Description
- Occupational Medical Dose
- Occupational Environmental Dose
- Occupational Internal Dosimetry
- Occupational External Dosimetry

Purpose and Scope

- Used in reconstructing radiation doses to workers at Hanford Site.
- Covers the time from 1942 to the present.
- Uncertainties in data evaluated also.
- Claimant-favorable assumptions used.

Site Description

- Brief description of the facilities and processes on the site over the years
- Radioactive materials present
- Potential internal exposure routes
- Potential external exposure routes

Hanford Site

- Reactors – nine production, seven R&D
- Chemical separations – REDOX, PUREX
- Fuel fabrication
- Waste handling
- Radionuclides – Pu, U, Th, Np, ^3H , FP

Occupational Medical Dose (X-rays)

- Frequency of chest X-rays
- Equipment and techniques used
- Organ dose calculations
- Uncertainty in dose
- Dose reconstructor instructions

Occupational X-rays

- Employer required
- Annual requirement through 1959
- Equipment used changed over time
- Older equipment had higher doses
- Not included in DOE dose record

Occupational Environmental Dose (for Unmonitored Workers)

- Internal dose from on-site radioactive materials in the air
 - On-site releases to air
 - Annual intakes from air concentrations
- Occupational external dose
 - Ambient radiation
- Uncertainty
- Dose reconstructor instructions

Environmental Dose

- Unmonitored workers
- Internal component
 - Intake from inhalation of radionuclides
- External component
 - Submersion in radioactive cloud – ^{41}A
 - Radiation sources in soil, waste pits, buildings, etc.
- Not included in DOE dose record

Occupational Internal Dosimetry

- Methods and practices
- Sources of exposure
- Minimum detectable activity (MDA) for:
 - Whole Body Counting
 - Bioassay
- Reporting levels
- Uncertainty
- Dose reconstructor instructions

Internal Dosimetry

- Bioassay program started in 1947
- *In vitro* urinalysis for Pu, Am, Cu, tritium, U, FP, Sr, Pm, Po, Np
- *In vivo* counting
 - Whole body counter – 1959
 - Thyroid counter – 1956
 - Chest counter – 1967

Occupational External Dosimetry

- Methods and practices
- Sources of exposure
- Adjustments to recorded dose
- Minimum detectable levels (MDLs)
- Uncertainty
- Dose reconstructor instructions

External Dosimetry

- Dosimeter technology
 - Beta/photon – 1944 to present
 - Neutron – prior to 1950 to present
- Calibration
- Exchange frequency
- Workplace radiation fields
- Exposure geometry

In Conclusion

- Developing a usable Site Profile is an important task.
- Site Profiles are living documents.
- Additional information is being sought and will be used when it adds to the document.
- Send comments to NIOSH Docket Office

NIOSH Docket Office

You can contact the Docket Office at:

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Safety and Health (NIOSH)

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