# Clarksville Modification Center, Ft. Campbell Special Exposure Cohort Petition Evaluation Report

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# Petition Overview

- NIOSH determined it was not feasible to complete the dose reconstruction for an existing Clarksville Modification Center claim
- On May 23,  2012, claimant notified and provided with a copy of Special Exposure Cohort (SEC) Petition Form A
- May 24, 2012: Petition (83.14) submitted to NIOSH
- May 31, 2012: NIOSH Evaluation Report issued

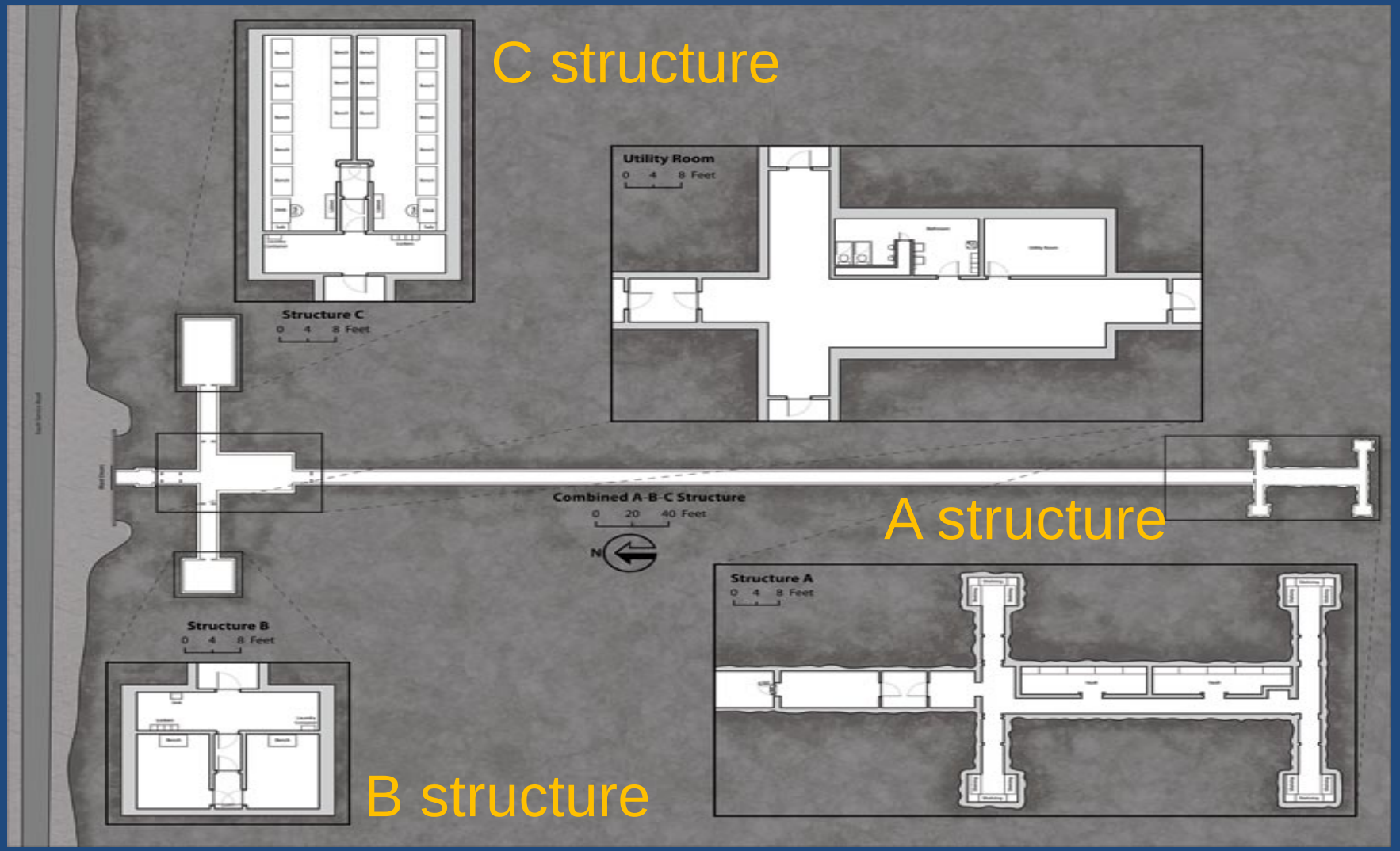
# Background

- EEOICPA covered from 1949-1967 (DOE)
- Part of Ft. Campbell, occupying about 3.2 square miles of the base
- Located ~50 miles NW of Nashville on TN-KY border
- Constructed by AEC as a nuclear weapons storage area
- Jointly operated by AEC, Sandia Corp., and various branches of the military

# Operations

- Site operational in August 1949
- Nuclear capsule storage in underground vault structures (A Structures)
- Weapons assembly, modification, and disassembly (B and C structures, gravel gertie)
- Activity checking of fissile material, replacing Po-Be initiators
- AEC transferred operations to Pantex in 1965, but some storage of classified materials continued until ~1967
- Workforce—ranged from 118 in 1960 to a maximum of 230 in 1964

# Clarksville Modification Center



# Sources of Available Information

- ORAU Team Site Profiles and Technical Information Bulletins (TIBs) and Procedures
- NIOSH Site Research Database
- Existing claimant files
- Information from Pantex Plant SEC evaluation
- Worker interviews (4) as well as information from claimant telephone interview files (CATIs)
- Data captures

# Data Capture Efforts

- DOE Opennet (OSTI data base)
- Standard data base search (DDRS, NNSA, CEDR etc.)
- Internet search
- Nuclear Regulatory Commission (ADAMS)
- Hanford/PNNL
- DOE Legacy Management
- State of Tennessee
- Various DOE locations, esp. Pantex
- Libraries (Clarksville county, Eastern KY University)

# NOSH/OCAS Claims Tracking System

(information as of May 21, 2012)

| | |
|---|---|
| Clarksville claims submitted to NIOSH | 92 |
| Claims that meet the recommended class years | 92 |
| Dose reconstructions completed for claims that meet the class definition | 70 |
| Claims containing some internal dosimetry | 0 |
| Claims containing some external dosimetry | 5 |

# Potential Radiation Exposures

- **Internal**
  - Airborne uranium oxides (HEU and DU)
  - Tritium gases
  - Radon
  - Plutonium
  - Cs-137
- **External**
  - Photon/beta and neutron exposures from
    - Uranium
    - Plutonium
    - Polonium initiators
    - Cs-137 from weapons components
    - Ir-192 and Co-60 radiography sources

# Personal Monitoring Data

- Internal monitoring data
  - No indication that a routine  bioassay monitoring program existed
  - 5 urinalysis samples for DU for single worker (single incident )
- External monitoring data
  - 1949-1960: dosimetry provided by Sandia (annual reports available)
  - NTA film added in 1958 (results not available)
  - 1960-1965: various dosimetry records and weekly summary data available (only some workers were monitored)

# Work Place and Source Term Data

- Workplace monitoring
  - Uranium contamination surveys during 1964 and 1965
  - Some indication that tritium air monitoring and swipes took place, records have not been located
  - No records of routine radon air monitoring
- Source-term monitoring
  - Radioactive materials consisted of tritium, HEU, DU, plutonium, radon, Po-210, radiography sources
  - Insufficient information is available on the source terms of these materials

# Feasibility of Dose Reconstructions

- Available internal monitoring records, process descriptions, and source-term data are inadequate to complete dose reconstructions with sufficient accuracy for the evaluated class of employees during the period from August 1, 1949 through December 31, 1967
- The findings from this SEC evaluation are consistent with the SEC determinations for facilities with similar radiological exposures:
  - Pantex Plant
  - Medina Modification Center

# Feasibility of Dose Reconstructions—cont.

- External doses can be reconstructed using available external monitoring data and available dose reconstruction methods:
  - Available film badge data likely from highest exposed worker group
  - Neutron doses are assigned using neutron-to-photon ratios of similar operations
  - Doses from X-ray examinations are assigned based on available methodology

# Feasibility Summary

| Feasibility Findings for Clarksville Modification Center | | |
|---|---|---|
| **Source of Exposure** | **Dose Reconstruction Feasible** | **Dose Reconstruction NOT Feasible** |
| **Internal** | | |
| | | X |
| **External** | | |
| - Beta-Gamma | X | |
| - Neutron | X | |
| - Occupational Medical X-ray | X | |

# Health Endangerment

- The evidence reviewed in this evaluation indicates that some workers in the class may have accumulated chronic radiation exposures through intakes of radionuclides and direct exposure to radioactive materials.
- Consequently, NIOSH is specifying that health may have been endangered for those workers covered by this evaluation who were employed for a number of work days aggregating at least 250 work days within the parameters established for this class or in combination with work days within the parameters established for one or more other classes of employees in the SEC .

# Proposed Class

**All employees of the Department of Energy, its predecessor agencies, and DOE contractors or subcontractors who worked at the Clarksville Modification Center, Ft. Campbell in Clarksville, Tennessee during the period from August 1, 1949 through December 31, 1967, for a number of work days aggregating at least 250 work days, occurring either solely under this employment or in combination with work days within the parameters established for one or more other classes of employees in the Special Exposure Cohort.**

# Recommendation

- For the period from January 1, 1949 through December 31, 1967, NIOSH finds that radiation dose estimates cannot be reconstructed for compensation purposes

| Class | Feasibility | Health Endangerment |
|---|---|---|
| January 1, 1949 – December 31, 1967 | No | Yes |