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Public Meeting - Proposed Plan
Operable Unit (OU) 2: Armstrong Building

Welsbach/General Gas Mantle Contamination Superfund Site
Camden and Gloucester City, New Jersey

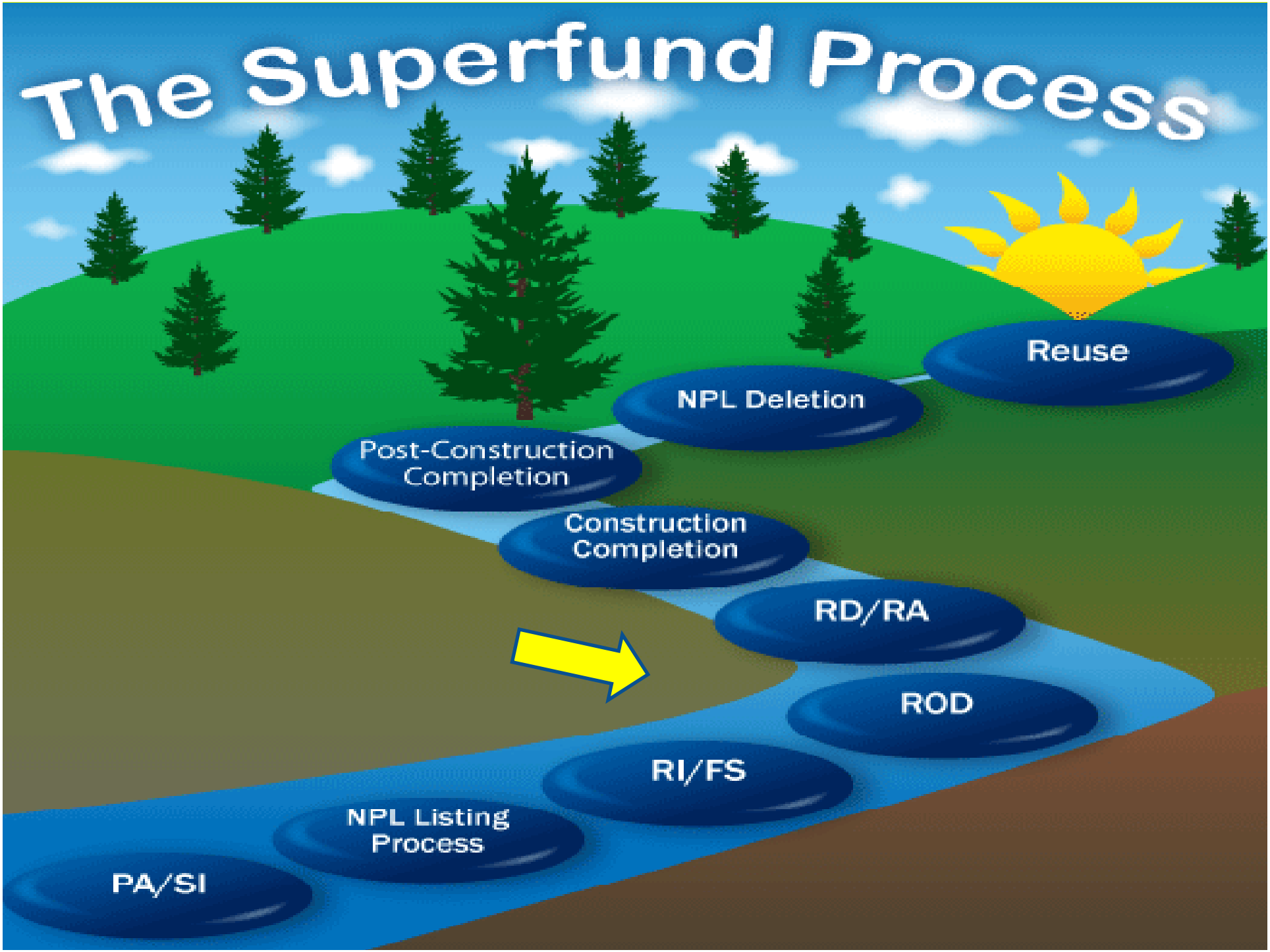
United States Environmental Protection Agency
REGION 2
New Jersey, New York, Puerto Rico & U.S. Virgin Islands

August 3, 2011

1000003

Agenda

- Superfund Process
- Site Background & History
- OU2 Remedial Investigations
- Baseline Risk Assessment
- Remedial Action Objectives & Cleanup Goal
- Remedial Alternatives
- Next Steps
- Questions


The Superfund Process
Reuse
NPL Deletion
Post-Construction Completion
Construction Completion
RD/RA
ROD
RI/FS
NPL Listing Process
PA/SI

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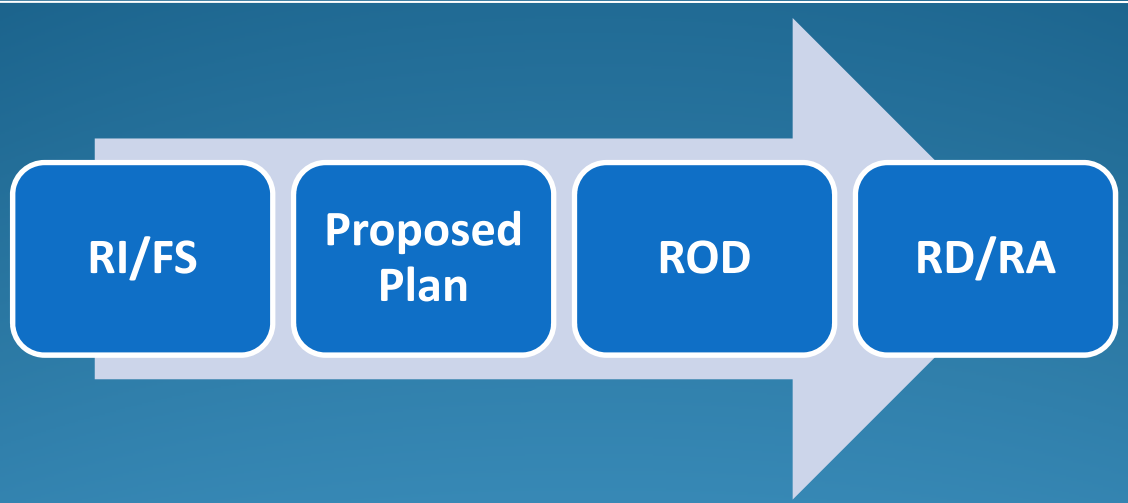
Superfund Process



- Remedial Investigation/Feasibility Study (RI/FS) - Investigate/evaluate nature & extent of contamination, baseline health risks, treatment technologies, remedial alternatives
- Proposed Plan - Public comment on preferred remedial alternative
- Record of Decision (ROD) - Select remedial alternative
- Remedial Design/Remedial Action (RD/RA) - Prepare for and implement selected alternative

Location of Welsbach/General Gas Mantle (GGM) Contamination Superfund Site

(Study areas outlined in yellow)

Welsbach Company

- 1885 - Dr. Carl Auer von Welsbach invented process to manufacture thorium gas mantles
- 1890s - Welsbach Company started manufacturing gas mantles in Gloucester City
- Circa 1915 – Welsbach Company moved to Armstrong Building and other buildings on the north side of Essex Street
- Early 1940s - Welsbach Company went out of business

Welsbach (circa 1900)

Welsbach Factory, Gloucester City, New Jersey

12 acres of ground; 2,600 employees, capacity, 220,000 mantles; 25,000 lamps per day

Welsbach/GGM Superfund Site History

- 1981 – EPA/NJDEP sponsored an aerial radiological survey of Camden and Gloucester City
- 1991 - NJDEP investigated over 1,100 properties in Camden and Gloucester City
- 1996 - Welsbach/General Gas Mantle Site listed on EPA's National Priorities List (Superfund)

Cleanup Phases

- OU 1 - Welsbach & GGM facilities, residential & commercial properties, municipal parks
  - Record of Decision (ROD) - 1999
- OU2 - Armstrong Building
  - ROD - 2011 pending
- OU3 - Adjacent water bodies: Delaware River, Newton Creek & Martin's Lake
  - ROD - 2005
- OU4 - Groundwater
  - To be investigated at completion of OU1

Armstrong Building Location

- Located on active port, warehouse & logistical facility
  - Owned by GMT Realty, LLC
  - Port facility operated by Gloucester Terminals, LLC

Armstrong Building

- Built around 1915
  - Masonry and reinforced concrete construction
  - Six interconnected buildings
    - 3 above-ground floors
  - 200,000 ft^2 of floor space
    - 1st floor and small area on 2nd floor used for training and offices

Armstrong Building

- In poor physical condition
  - 2nd & 3rd floor walls & 3rd floor ceiling, open to the environment

Armstrong Building Investigation Timeline

- May 1997 - EPA/Holt Hauling & Warehousing, Inc.: Voluntary Administrative Order on Consent
  - RI/FS by Integrated Environmental Management for Holt
    - July 1998 - RI Report
    - January 2000 - Baseline RA
    - January 2000 - FS
- 2010 - RI/FS by EPA
  - July 2011 - Supplementary RI Report
  - July 2011 - FS
- July 2011 - EPA Proposed Plan

Remedial Investigation Results

- Radioactive contamination identified on building materials/surfaces
- 2nd Floor - Rooms 9, 10, 11 & 13
- 3rd Floor - Rooms 15, 16, 17, 18, 19, 20, 21, 22 & Area A
- Stairway between Areas A & B

Remedial Investigation Results

- Primary radionuclides of concern:
  - Th-232; 14 billion-year half-life
  - Ra-226; > 16,000-year half-life
- Th-232 predominant radionuclide; Ra-226 only in Room 11
- Most contamination within top 1/8 inch
- Radon/thoron below EPA's action level (4 pCi/L)

Armstrong Building (~1917 vs. 2011)

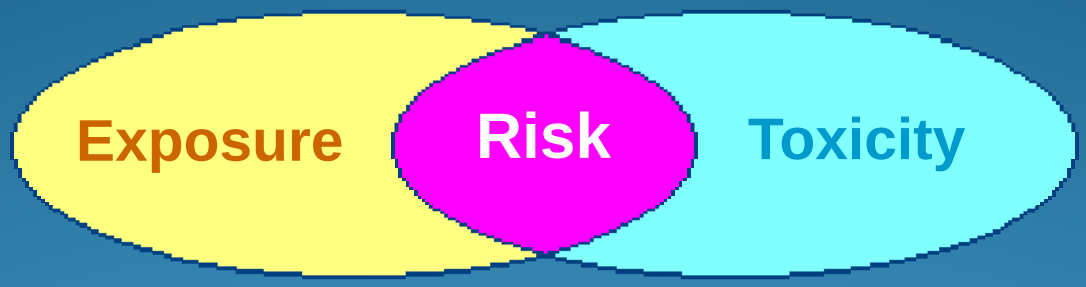
Mantle Sewing Room 1917

2011 (Room 11)

Mantle Dipping Room 1917

2011 (Room 22)

EPA Superfund Human Health Risk Assessment



- Baseline conditions evaluated in the absence of remedial action
  - Evaluated under current and future conditions
- Goal is health protection under reasonable maximum exposures

Human Health Risk Assessment

- Exposures
  - Who is exposed? (*e.g.*, workers, residents)
  - How are they exposed? (*e.g.*, building materials, air, groundwater)
  - What are the routes of exposure? (*e.g.*, external, inhalation, ingestion)
- Frequency of exposure
- Duration of exposure

Human Health Risk Assessment

- Incremental lifetime cancer risks estimated for each receptor based on toxicity values developed for Superfund sites
- Risk range established under Superfund law and federal regulations implementing the law
- Risks to reasonable maximum exposure individual compared to risk range

Human Health Risk Assessment Summary

- Three scenarios evaluated against EPA's risk range:
  - Uncontrolled release (*e.g.*, fire, collapse)
  - Building demolition and reuse of debris as fill
  - Building reuse
    - Risks greater than the risk range for Rooms 11 & 17 (future workers and residents)

Remedial Action Objectives

- Protect human health and the environment from potential current and future health risks
- For the Armstrong Building:
  - Prevent radiation exposure from radiological contamination on building material surfaces
  - Prevent future release of radioactive contamination from the building to the environment

Remedial Alternatives

Alternative	Action	Cost
1	No action	$0
2	Decontamination, off-site disposal	$3,500,000
3	Demolition, off-site disposal	$103,000,000

Nine Criteria for Remedy Evaluation

A. Threshold Criteria:

1) Overall Protection of Human Health and the Environment
2) Compliance with State and Federal Regulations

B. Balancing Criteria:

3) Long Term Effectiveness and Permanence
4) Reduction of Toxicity, Mobility or Volume
5) Short-term Effectiveness
6) Implementability
7) Cost

C. Modifying Criteria:

8) State Acceptance
9) Community Acceptance

Comparative Analysis

Criteria	Alternative 2 (Decontamination)	Alternative 3 (Demolition)
1. Overall Protection of Human Health and the Environment	X	X
2. Compliance with State and Federal Regulations	X	X
3. Long Term Effectiveness and Permanence	X	X
4. Reduction of Toxicity, Mobility or Volume	-	-
5. Short-term Effectiveness	X	X
6. Implementability	X	
7. Cost	X	

Alternative 1 - No Action - is not protective of human health and the environment; as such, it was eliminated from consideration under the remaining criteria

Preferred Alternative

- Alternative 2 – Decontamination, off-site disposal
  - Decontamination (physical and/or chemical) of contaminated surfaces
  - Environmental testing to ensure the effectiveness of the cleanup
  - Disposal of the waste at a licensed/permitted facility
  - Estimated cost: $3,500,000

Next Steps

- Public comment on Preferred Alternative
- Responsiveness Summary – consideration of public comments
- Selection of final remedy
- Record of Decision

Please submit written comments by August 22, 2011

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http://www.epa.gov/region2/superfund/npl/welsbach/