Residential Waterfront Redevelopment: Expanding Baltimore’s Inner Harbor

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City of Baltimore, Maryland
“Land of Pleasant Living”

Historical Baltimore
- Manufacturing City
- Large Shipping Industry
- Warehousing
- Railroad Connections
- “Digital Harbor”
Project Introduction

Site Facts
- Eight (8) acres in size
- Historical manufacturing, industrial, and residential use
- Industrial use began as early as 1860
- Current use – parking lot
- Prime waterfront property
  - Exhibits the three L’s
History of the Former Constellation Properties - 1947
History of the Former Constellation Properties - 1969
Proposed Redevelopment

Stakeholders:
Proposed Redevelopment
Parcel Delineation

**Former Constellation Properties—Inner Harbor, MD**

Nine Separate Parcels
- Bond Street Wharf
- Jackson's Wharf
- Promenade
- Parcel D1
- Parcel D2
- Parcel #1
- London Coffee House
- Harbor Point
A Systems Approach Framework
The Triad Approach

Systematic Project Planning

Dynamic Work Plan Strategy

Real-time Measurement Technologies
Enter all 8 acres into Maryland’s Voluntary Cleanup Program (VCP)

- The VCP encourages Field Based Technologies
  - XRF for metals in soil
  - Field GC for VOCs in groundwater
  - Diphenylcarbazide for Cr$^{+6}$
  - Summa® canisters
  - Interim Removal Action or “Hot Spot” removal
  - Mercury speciation in soil
Original Project Approach

- Environment Due Diligence – ASTM Guidelines
  - Phase I ESA
  - Phase II ESA
  - VCP Application
  - Generation of the Sampling & Analysis Plan (SAP)
    - Based on Conceptual Site Model or
    - Exposure pathway networks
Original Project Approach

Environment Due Diligence – ASTM Guidelines

- SAP Implementation
- Interim Removal Action – “Hot Spot Removal”
- MDE issued No Further Requirements Determination
- Begin Construction
Actual Project Schedule

- Phase I ESA: March 2000
- Phase II ESA: June 2000
- VCP Application and SAP Generation: 7/00 – 6/01
- Hot Spot Removal: 7/01
- Construction began: 9/01
Logistical Problems

- Developer’s schedule
- All 8 parcels had to be separated for VCP approval
  - Lingering Hot Spots
  - Coordination with construction schedule
  - Negotiations with MDE for closure
New Project Approach

**Parcel A**

- *Future use*: commercial office space
- Hot spot removal
  - Performance Based Measurement System (PBMS)
  - XRF characterization
    - Lead & arsenic
- Waste characterization
  - Marine sediments
- Engineering and institutional controls
  - Utility worker protection
New Project Approach

Parcel D

- Second parcel scheduled for construction
- *Future use*: parking garage with residential “wrapper”
- First week of construction:
  - Hexavalent chromium
New Project Approach

Parcel D

- Hexavalent chromium (Cr\(^{+6}\))
  - Diphenylcarbazide
- Remediation
  - Cr\(^{+6}\) soil: 700 tons
  - Cr\(^{+6}\) water: 35,000 gal.
  - Petroleum soil: 2,000 tons
  - Petroleum water: 300 gal.
  - Six UST
New Project Approach

Parcel D

- HASP
  - MDE approval
- Coordination with construction contractors
  - Logistical
  - Spatial organization
  - Safety meetings
- Engineering and institutional controls
New Project Approach

London Coffee House and Parcel #1

- *Future use:* five luxury townhomes & two commercial units
- Hot spot removal
- Field GC: groundwater
- Mercury speciation - soil
New Project Approach

**London Coffee House and Parcel #1**

- Vapor sampling
  - Summa® canisters
  - Modeling of data – Johnson & Ettinger model
- Engineering and institutional controls
  - Vapor barrier
New Project Approach

Parcel B & C

- *Future use*: Jackson’s Wharf – waterfront residential townhomes and condominiums
- Hot spot removal
  - XRF characterization
- Engineering and institutional controls
Finished Product
Thank You!

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