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# **Dundalk Marine Terminal Remediation Community Participation Working Group Presentation**

**September 25, 2012**



## MPA/MDE/Honeywell Agreement

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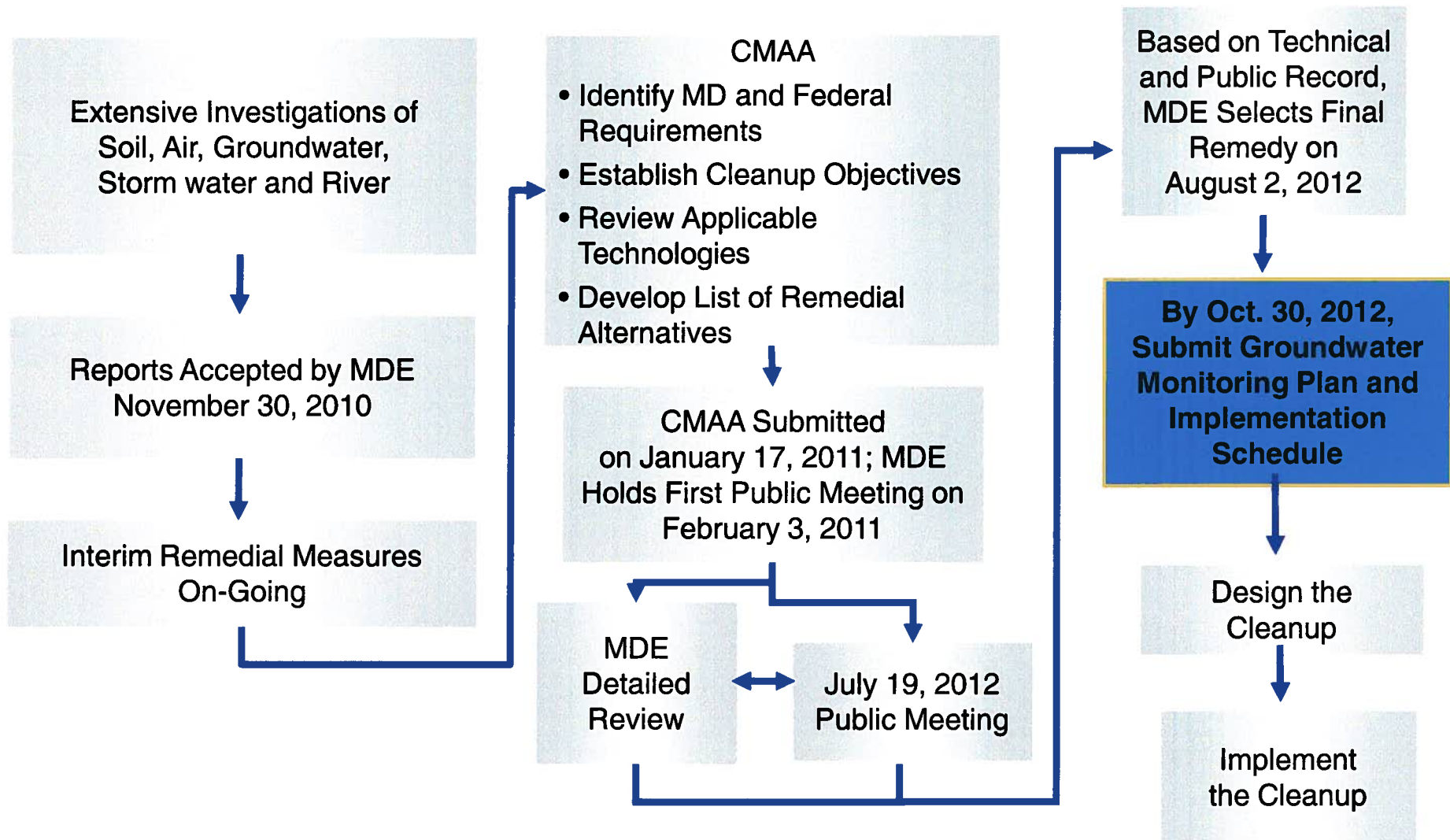
### Consent Decree – April 2006

- Established process for investigation and remedy evaluation
- Required series of Technical Reports that form basis of remedial alternatives development
- Identified criteria for evaluating remedial alternatives
  - Health, Safety, and Protectiveness
  - Federal and state environmental laws
  - Overall effectiveness
  - Degree to which remedy will interfere with ongoing Port operations
- Sets schedule up to submittal of remedial alternatives – Corrective Measures Alternative Analysis (CMAA)
- Consent Decree filed in federal court after reviews and approval by MDE

***Cost paid by Honeywell and MPA***



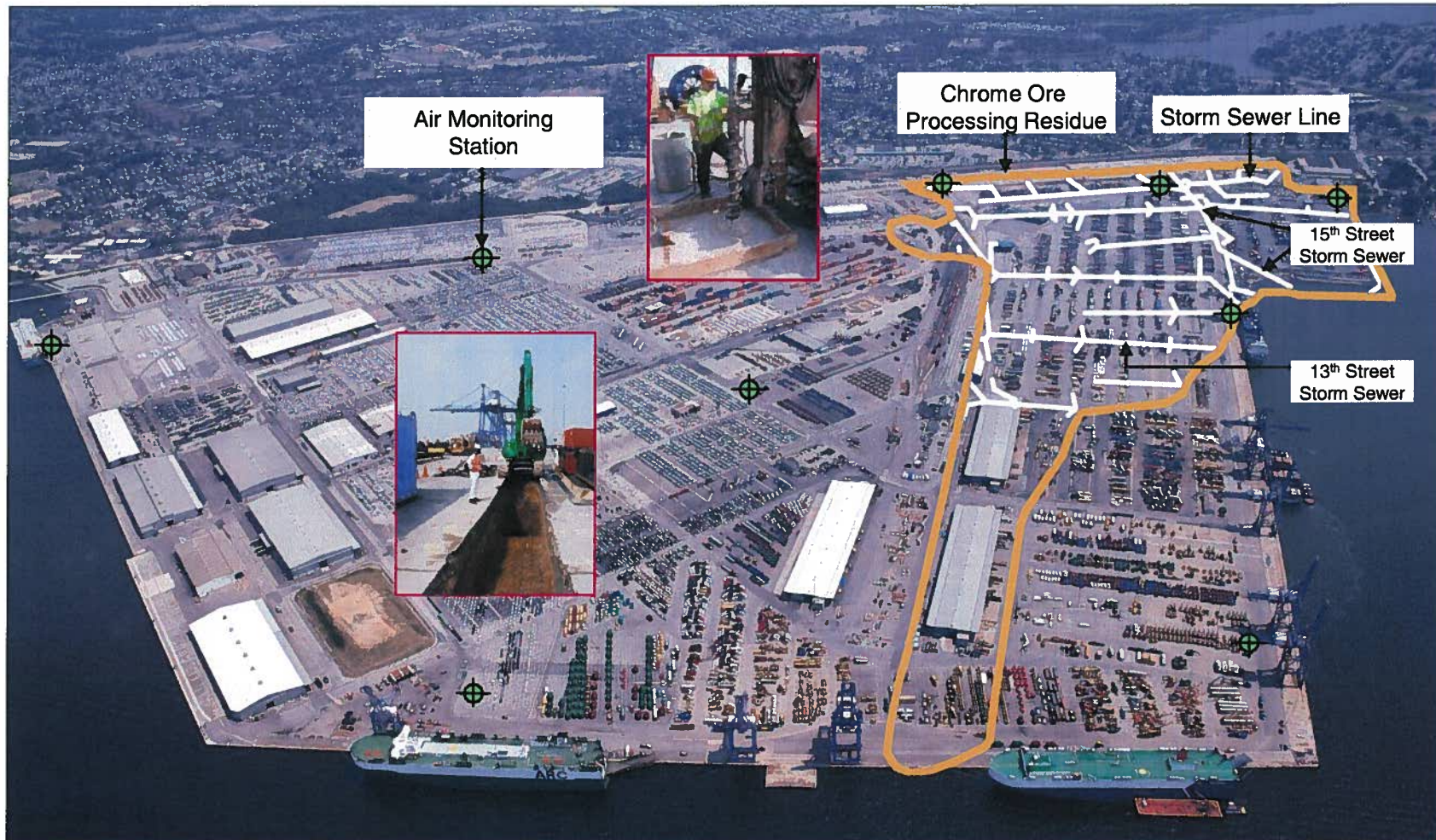
# Investigation and Remedy Selection Process





# Dundalk Marine Terminal Site Investigations

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***Extensive investigation – more than 5,600 samples collected under MDE direction***



## Site Investigation Findings

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- COPR is contained within a well-defined area where it is covered with a clean soil layer and asphalt pavement cap
- Drinking water sources fully protected; groundwater is not a source of drinking water at Terminal or in local communities
- Hexavalent chromium not found in river sediments or surface water above federal criteria
- Human Health/Ecological Risk Assessments approved by MDE
- Accelerated interim measures significantly reduce amount of hexavalent chromium getting into storm drains

***Data shows that COPR has not migrated by air or groundwater from the Terminal***



## Consent Decree Remedy Evaluation Criteria

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- Protect health and environment from chromium ore processing residue (COPR) at Port
- Meet all federal and state environmental laws
- Reduce toxicity, mobility or volume of contamination
- Ensure long-term protectiveness and permanence
- Consider short-term risks associated with implementation
- Consider degree to which a remedy will interfere with ongoing Port operations
- Be cost effective
- Ability to implement

*MDE applied rigorous criteria to select remedy*



## MDE Remedy – Enhanced Isolation and Containment with special conditions

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- Repair and reline storm drains located in COPR to mitigate impacts to storm water
- Install vaults to monitor storm water and facilitate inspections and repairs
- Implement Performance Management program for storm water, groundwater, surface cover, and any impacts from COPR heaving including:
  - Monitoring effectiveness and performance of remedy
  - Establishing triggers to identify need for additional measures
  - Routine reporting on effectiveness of remedy
  - Maintaining containment of COPR at the Terminal
- Maintain data on inspections and maintenance in an electronic database
- Continue protective monitoring and maintenance projects
- Install additional monitoring wells and conduct quarterly groundwater sampling for a minimum of three years

*Remedy prevents storm water contamination*



## **BENEFITS of Enhanced Isolation and Containment**

- Groundwater monitoring to track continued effectiveness of remedy
- Protects health and environment
- Manageable disruption to Port operations
- Prevents contamination of storm water prior to discharge to river
- Avoids disruption to Port and community that would occur with more aggressive remedy
- Modifications can be made based on performance data

***Remedy is protective of health and environment***





## Interim Remedies Achieving Results

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- Groundwater Treatment Plant has treated an average of **42 million gallons of storm water/year** since 2006 from 14<sup>th</sup> and 15<sup>th</sup> Street storm drains; resulting water quality meets MDE requirements
- Since 2006 almost **two miles of storm drains have been relined** to prevent chromium from entering drains; advanced relining technologies being used; installation of vaults at storm drains located in COPR fill; significant reduction of chromium moving into storm drains
- **20 acres of new blacktop cap since 2005 strengthens COPR containment**
- Extensive testing of advanced technologies underway



***Accelerated program for interim remedies under MDE supervision***



## On-Going Monitoring Programs

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### **Air Monitoring Program**

- Monitoring of air at perimeter of Terminal since 2007; no detections of hexavalent chromium from COPR in perimeter air monitors



### **Groundwater Monitoring Program**

- Groundwater is monitored on semi-annual basis in 34 wells located at perimeter of COPR fill area; results confirm that hexavalent chromium is not leaving site boundary in groundwater at unacceptable levels

### **Storm water Monitoring Program**

- Storm water is monitored quarterly from 12 storm drain outfalls and outfall from treatment plant; final remedy addresses storm water

### **Drinking Water Monitoring Program**

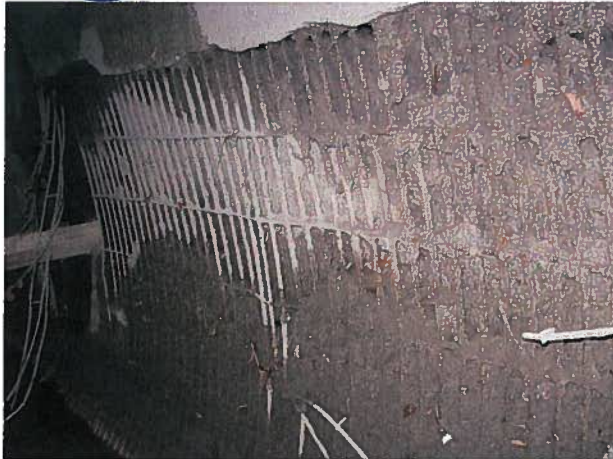
- Drinking water is routinely monitored; no detections of hexavalent chromium in drinking water at Terminal

*Monitoring programs measure effectiveness of remedy*



# Storm Drain Repair

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Clean and Identify Repair Areas



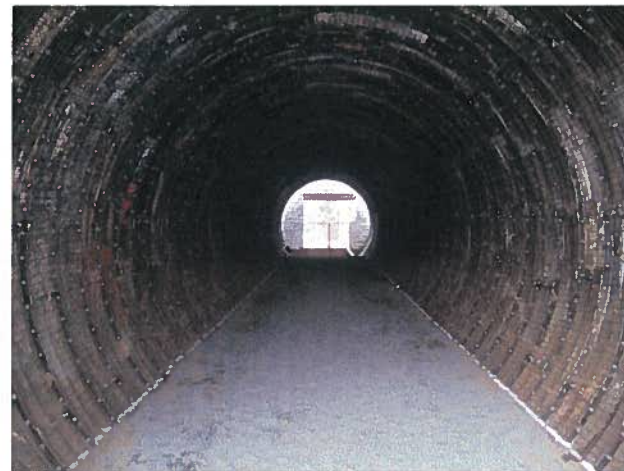
Repair Damaged Areas



Liner Preparation



Spray-on Surface Coating



Liner Installed

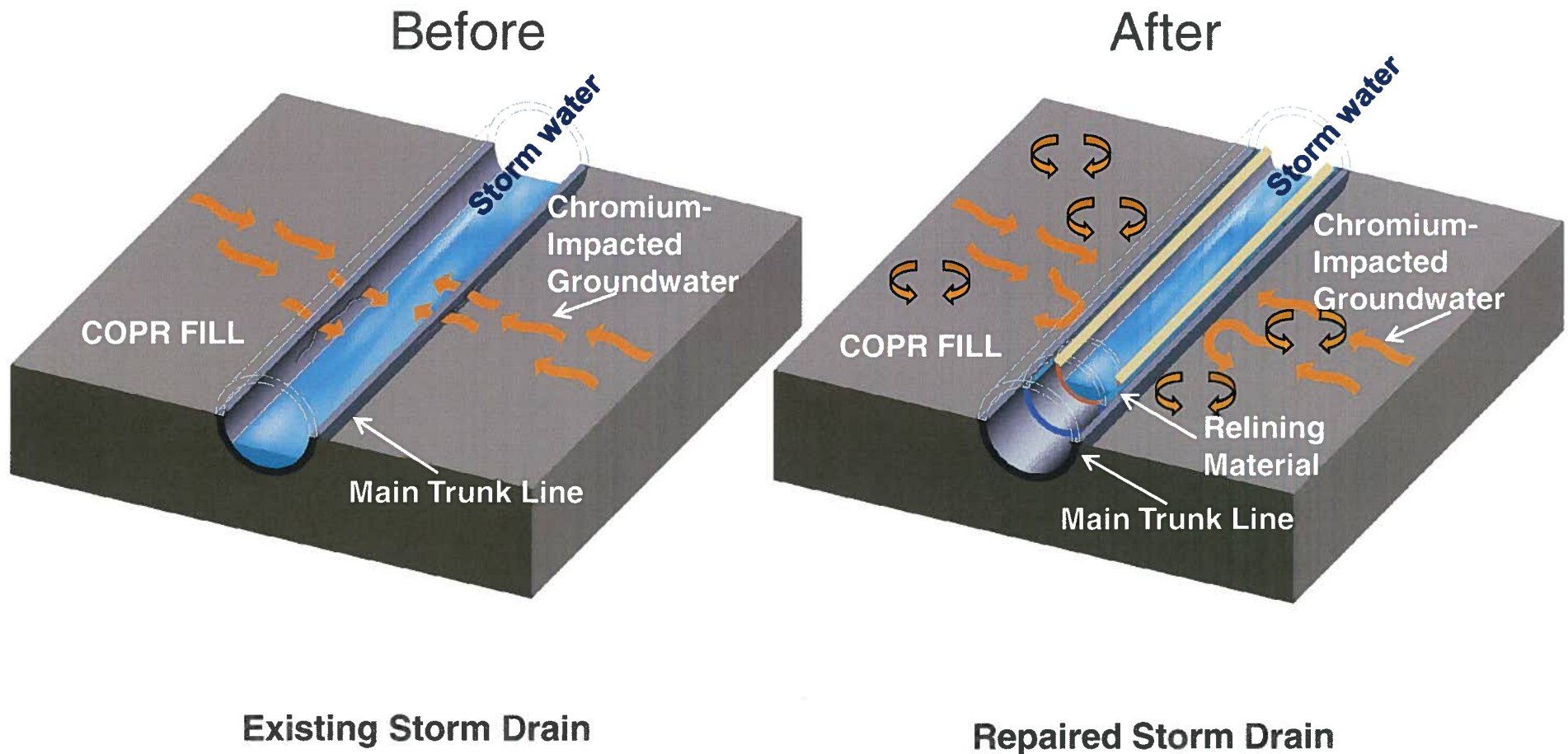


Grouting Seals Plates



# Impact of Storm Drain Relining

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*Relining prevents hexavalent chromium movement*