



DUNDALK MARINE TERMINAL REMEDIATION

Dundalk CMAA Community Working Group

October 25, 2017

Honeywell
THE POWER OF **CONNECTED**

MDE Remedy—Enhanced Isolation and Containment with Special Conditions

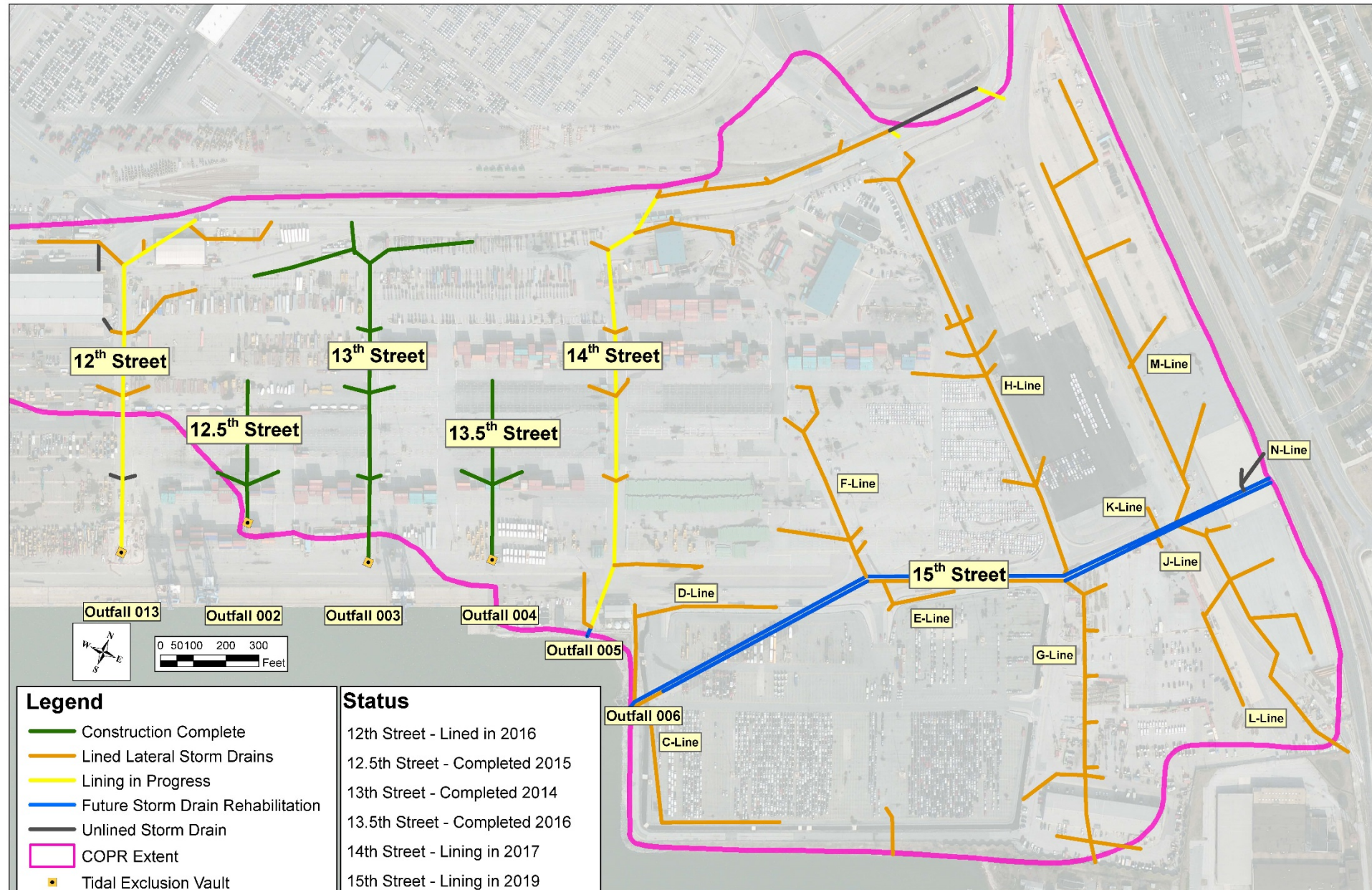
- Repair and reline storm drains located in COPR boundaries
- Install tidal exclusion vaults to monitor and maintain storm drains
- Implement Performance Management Program (PMP)
 - Storm water, groundwater, surface cover, COPR heaving
- Maintain electronic records for PMP inspections and maintenance
- Install additional monitoring wells
- Conduct quarterly groundwater sampling for a minimum of three years



COPR Extent – 12th - 15th Street Storm Drains



Storm Drain Rehabilitation Progress 2017



Storm Drain Rehabilitation to Date

- Almost 3 miles of storm drains lined and extensive rehabilitation of inlet and manhole structures

107
structures
relined or
replaced
to date



Structure grout injection prior to relining



Inlet relining in progress



Transition strip from lined pipe to inlet

39
manholes
relined or
replaced
to date



Areas of heavy traffic

Storm Drain Outfalls

- Observations
 - Large precipitation events have not damaged outfall tidal exclusion devices
 - River debris has floated up stream into tidal exclusion devices
- Completed Maintenance
 - Installation of trash guard downstream of tidal exclusion vault
 - Repair of seals around duckbills
 - Replacement of select duckbills/flap gates
 - Re-inspection to verify completed repair



Flap Gate



Duckbill



Flap Gate



Surface Cover & Progress Since 2015

- Paved approximately 4 acres and sealed 1.5 miles of cracks as part of the Surface Cover Maintenance and Repair Program
- Rehabilitated 23 inlets, 7 manholes and 2,100 linear feet of storm drain pipe as part of the Storm Drain Rehabilitation Program
- Improved shoreline protection along 1,500 linear feet of Area 1501

Progress



Asphalt milling in Area 1600



Lined 12th Street Trunk Line



Asphalt surface cover being placed at location in Area 1600



Surface Cover Paving & Repair

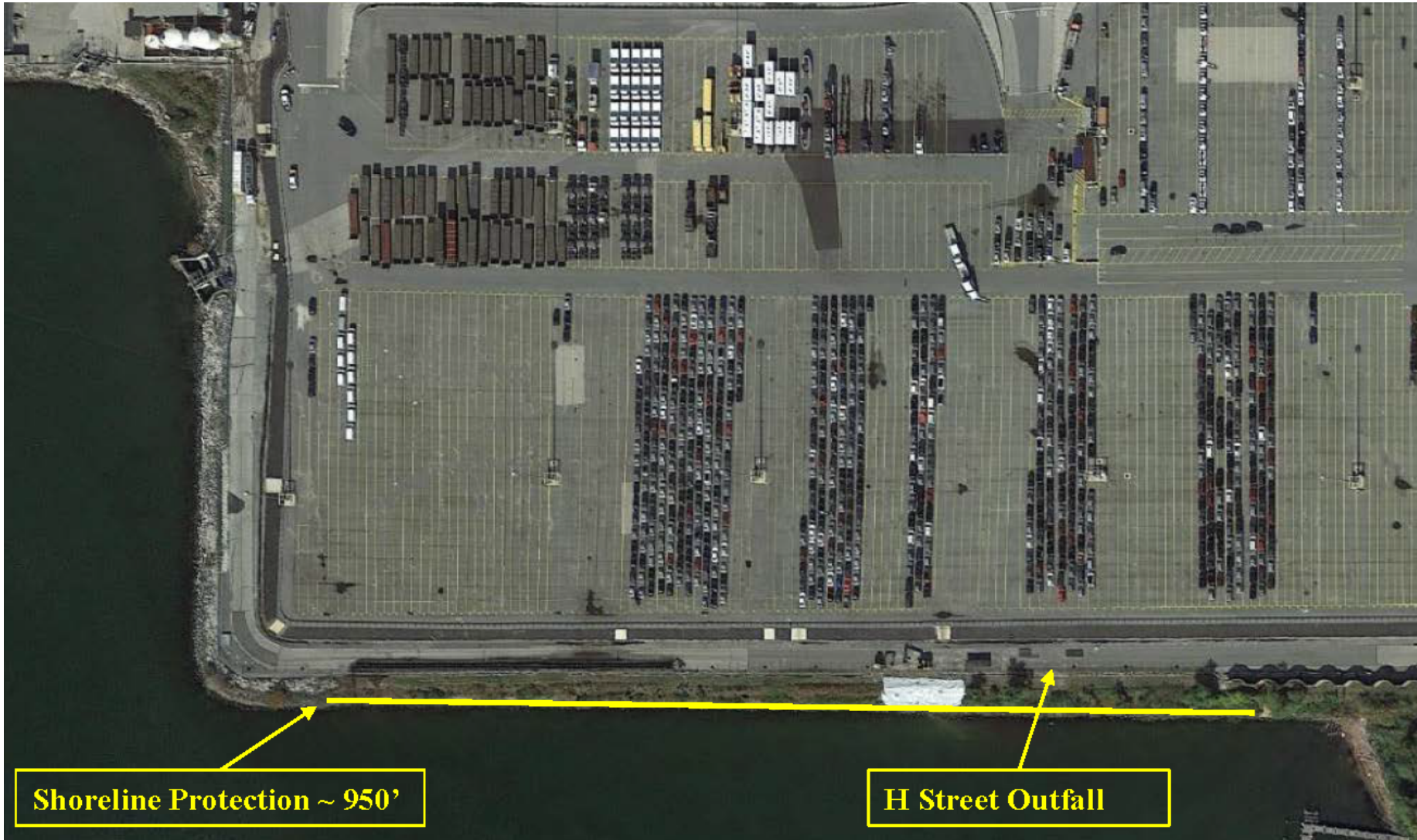
- 35 acres paved since 2005
- 20 miles of surface cover cracks sealed since 2005
- Surface Cover Maintenance and Repair Program is effective in containing COPR at the Port

Example of surface cover repair

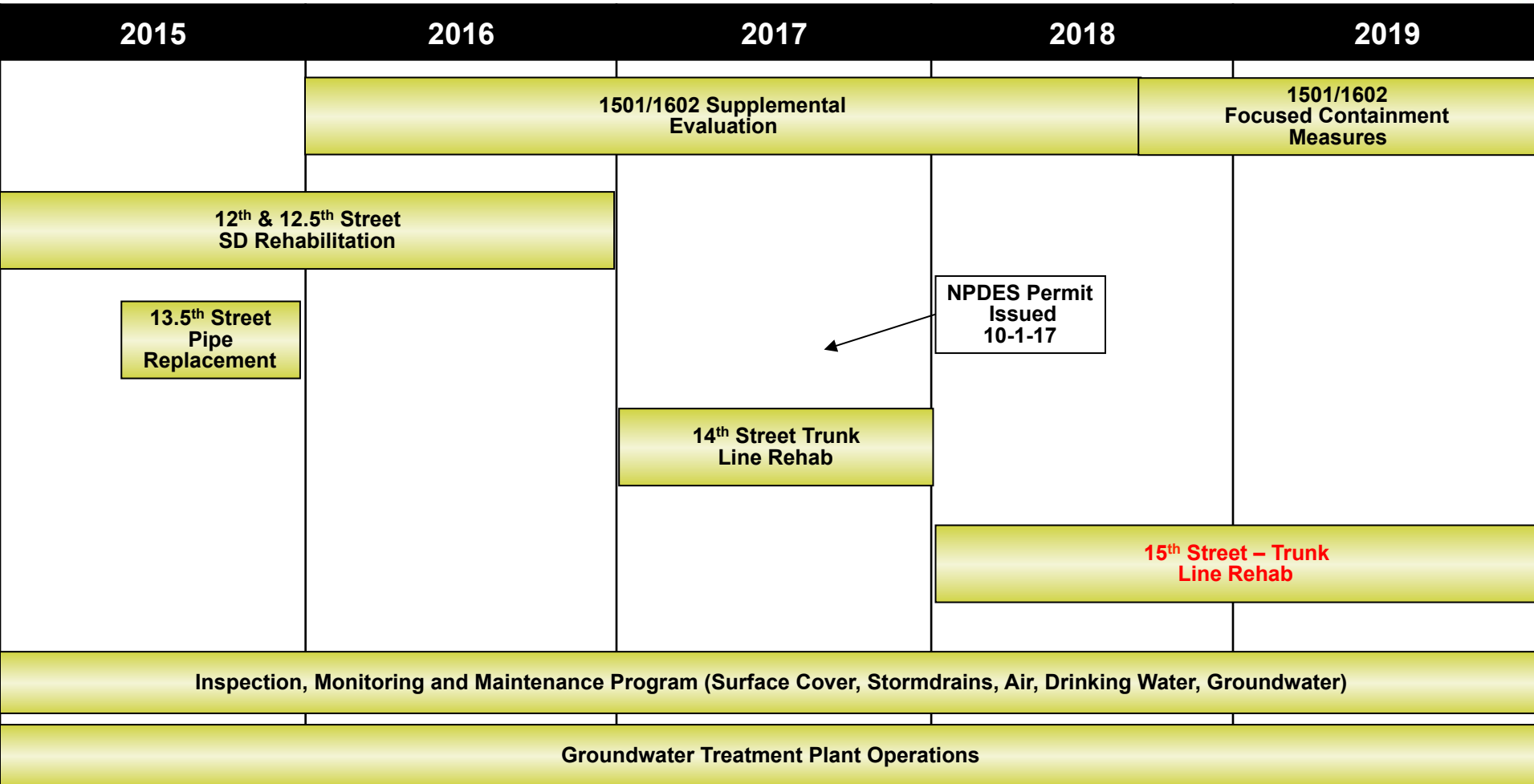
Asphalt surface cover being placed at location in Area 1300



Area 1501/1602 Shoreline Improvements



DMT Progress & Future Work



Thank you!



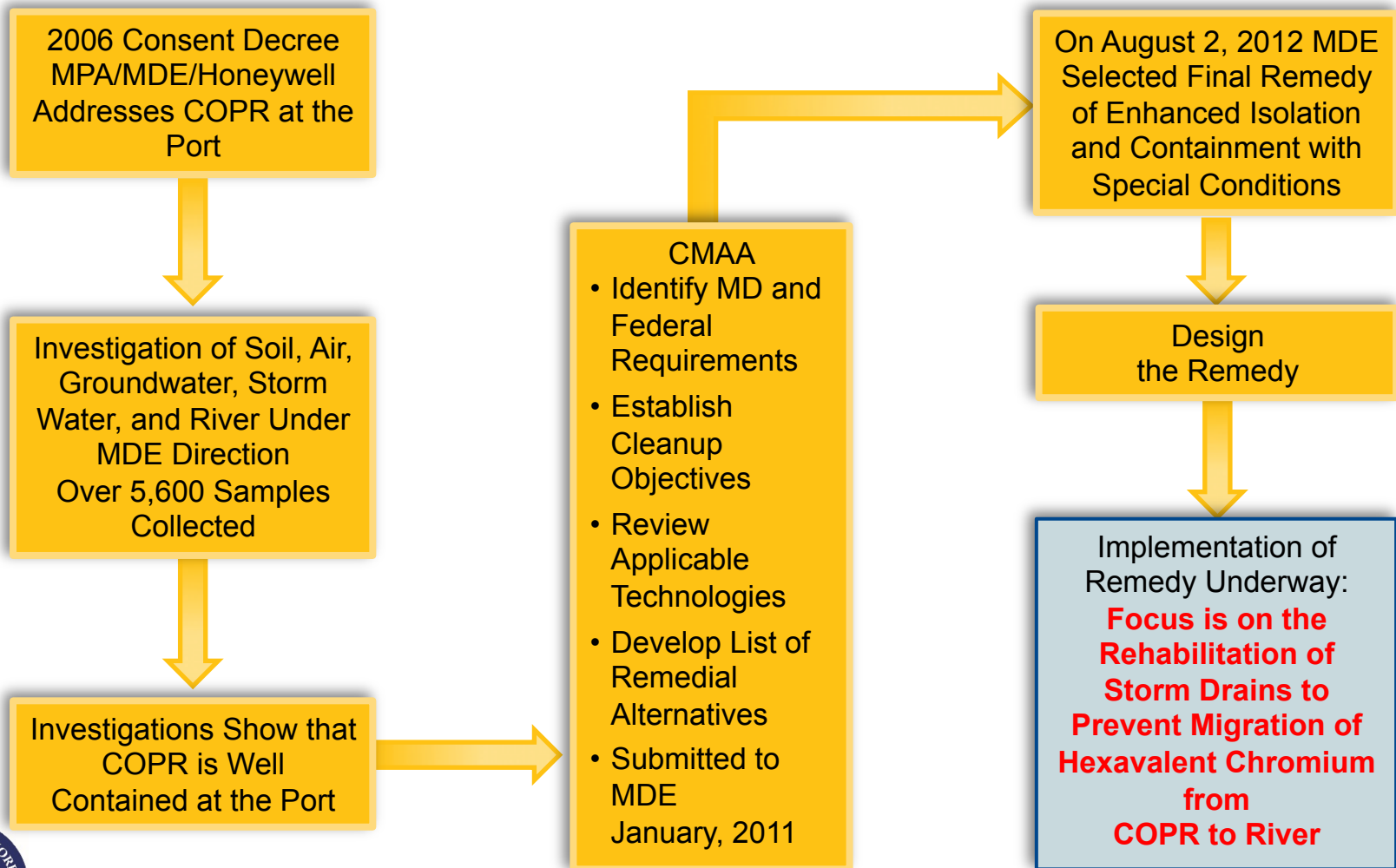
Backup Slides



COPR Fill at Dundalk Marine Terminal



Background/Overview



Comprehensive Studies Accepted by MDE

Studies	Objective	Findings
COPR Investigation	Determine where COPR was deposited and extent of hexavalent chromium movement.	COPR area consistent with past studies.
COPR Heave	Identify why COPR expands and how the effects of COPR heave can be managed.	Science and mechanism understood; engineered approaches can manage effects of COPR expansion.
Surface Water & Sediment	Examine whether hexavalent chromium exists in Patapsco River and/or in its sediment.	No impact to surface water above water quality standards; No hexavalent chromium in sediments above criteria.
Chromium Transport Study	Define physical and chemical parameters that control movement of hexavalent chromium in air, groundwater, and storm water.	Only significant movement of hexavalent chromium is from groundwater into storm drains



Monitoring and Maintenance

- Air

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

- Groundwater

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

- Stormwater

Ongoing inspections of relined segments to ensure construction effectiveness
Proposed NPDES permit proposes inspection on quarterly basis

- Drinking Water

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

- Surface Cover

Ongoing Surface Cover inspection program for COPR fill area



Monitoring programs measure effectiveness of remedy



Innovative Storm Drain Lining Performed within Confined Spaces

- 15th Street B1 Trunk Line Rehabilitation



- Containment Achieved



Project Execution

Proper PPE & Retrieval



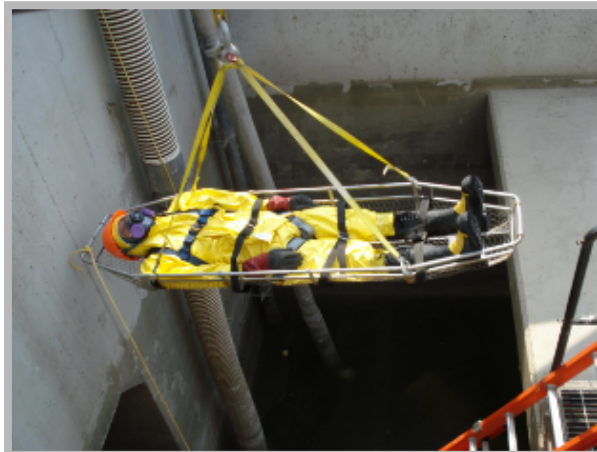
Communications



Flow Sensors & Alarms



Evacuation
Drills



Lighting,
Ventilation,
and Video
Monitoring



Replacement Structures and Tidal Exclusion Vaults

- Manhole Replacement



- Tidal Exclusion Vault



Scientific Work from Johns Hopkins

- Chromium in the sediment is non-toxic “trivalent” and not “hexavalent.”
- Chromium in sediment is stable with very little potential for it to change to toxic form even in conditions where sediments are disturbed.
- Protection of aquatic life is not impaired by chromium.
- Conditions that cause chromium to become toxic do not naturally exist in Baltimore Harbor.

