Paulsboro Refinery

• ≈ 180,000 BPD crude oil petroleum refinery
  • Products: Transportation fuels, heating oils, and lubricant base oils.

• Located in Greenwich Township, Gloucester County, New Jersey
  • Adjacent to Delaware River on 750 acres at RM 87.7.

• Vacuum Oil Company began refining operations 1917
  • Mobil and Valero were also previous owners.

• PBF Holding Company LLC acquired refinery on December 17, 2010
Paulsboro Refinery

- **WWTP design flow rate 15.8 MGD**
  - Tertiary treatment system.

- **WWTP typical flow rate ≈8 MGD**

- **Two NJPDES permitted outfalls**
  - **DSN-001A**: Treated WWTP effluent and typical stormwater flow.
  - **DSN-002A**: Emergency discharge for extreme precipitation events (< 1x/yr).

- **Stormwater retention ponds - 37MG**

- **River water for cooling towers/boilers/fire protection - ≈ 7MGD**
Pollution Minimization Plan Highlights

• October 4, 2005: Submitted PMP Plan

• January 17, 2006: PMP Completeness Determination
  – Focus: Historical soils/sediment PCB contamination.

• 2005 - 2012: > 95% reduction of PCB mass loading to Delaware River
  – Facility removed or environmentally isolated > 1,400 pounds of PCBs.
  – Sediment reduction to WWTP reduces total PCB to river.
PMP Measures

J-Pond Stormwater Retention Area
• Closure included in-situ stabilizing /solidifying sediment to eliminate PCB migration and exposure.
• Closure approved by NJDEP Site Remediation Program.

Process Sewers
• Sewer segments cleaned to remove sediment as necessary.
• Sediment shipped off-site for disposal.

Landfill
• Installed 40-mil, low-density polyethylene (LDPE) geo-synthetic liner cap.
• Used soil to establish grade for landfill cover and provide barrier between landfill material and geo-synthetic liner.
• Six-inches seeded clean fill placed on top of liner to prevent erosion.
• NJDEP-approved Work Plan.
PMP Measures

**Soil Reuse**
- Soil from construction or maintenance projects analyzed for PCB content.
- Soil w/PCB content > 1 mg/kg shipped off-site.

**East/West Stormwater Ditch**
- 4,450 yds$^3$ of sediment stabilized in place with Portland cement.
- 3,500 yds$^3$ of sediment sent off-site for disposal.

**Unused Oil/Water Separator**
- Clean fill/gravel cover placed over area to restrict direct contact with PCB soil and to control surface water runoff – NJDEP-approved Work Plan.
- Area restricted from future disturbance.
PMP Measures

Recycling Treated WWTP Effluent
- Treated WWTP effluent recycled into refinery fire protection system.
- Used as service water for cleaning and miscellaneous cooling.
- Less river water use means less PCB withdrawn from river into facility.

West Stormwater Retention Pond-A
- Suspended solids in refinery stormwater run-off settle out / accumulate in Pond-A.
- Sediment removed from portion of Pond-A transferred to North Stormwater Retention Pond for subsequent stabilization/solidification.

North Stormwater Retention Pond
- Sediment from West Retention Pond-A used as supplemental fill material in stabilization/solidification closure of the North Retention Pond
- Replacement stormwater collection system for North Pond included a 212-thousand gallon sump and 5-million gallon aboveground storage tank
- NJDEP-approved Closure Plan.
Measuring PMP Effectiveness
Summary

• Paulsboro Refinery remains committed to reducing discharges of PCB to the Delaware River Estuary through the PMP process.
• Sampling data demonstrate that the PMP approach as implemented at the Paulsboro Refinery is effective and is measurably reducing PCB discharges to the Delaware Estuary.
• PMP progress is not finished - it is a continuing process
• Our efforts will continue.
Thank You – Any Questions?

John Deemer, Environmental Manager
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