

Identifying and Managing PCB Wastes During Demolition/Renovation: Case Studies from Coast to Coast

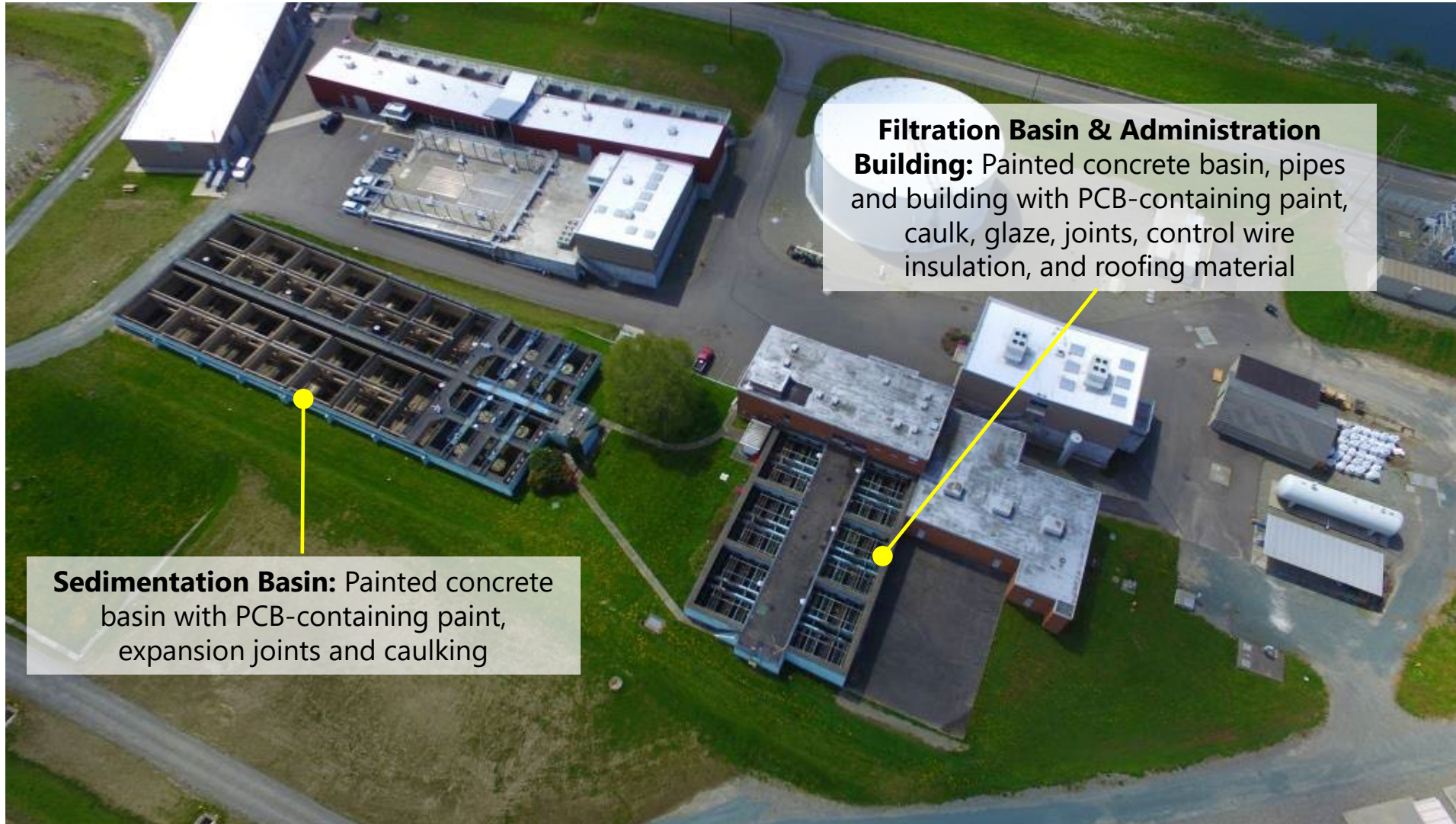
Presented by
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Demolition of a Former Water Treatment Plant in Washington



Former Water Treatment Plant—Built in 1969



Filtration Basin & Administration Building: Painted concrete basin, pipes and building with PCB-containing paint, caulk, glaze, joints, control wire insulation, and roofing material

Sedimentation Basin: Painted concrete basin with PCB-containing paint, expansion joints and caulking

Project Design Considerations

- Appropriate classification of building materials to distinguish between PCB-containing and non-PCB wastes to:
 - Minimize transport and disposal costs
 - Maximize beneficial reuse as on-site fill
- Environmental controls to minimize or eliminate dust and potential impacts to current WTP facility located 50 feet away
- Removal of all PCB-impacted materials > 1 ppm for source control and to support site soil cleanup requirements under MTCA
- Minimizing effects to active WTP operations

Pre-Design Assessment



- Reviewed original construction plans and specifications
- Phased approach for delineation of PCBs in building materials
- Identified source(s) of PCBs to support waste designation

PCB Source Identification

- Review of original plant specifications determined that paints and coatings were manufactured with PCBs

SCHEDULE I
TECHNICAL PROVISIONS - SECTION 21
PAINTING

TP-I-21.01 SCOPE

This Section covers painting, complete. Items or equipment and furniture having a factory finish will not be painted.

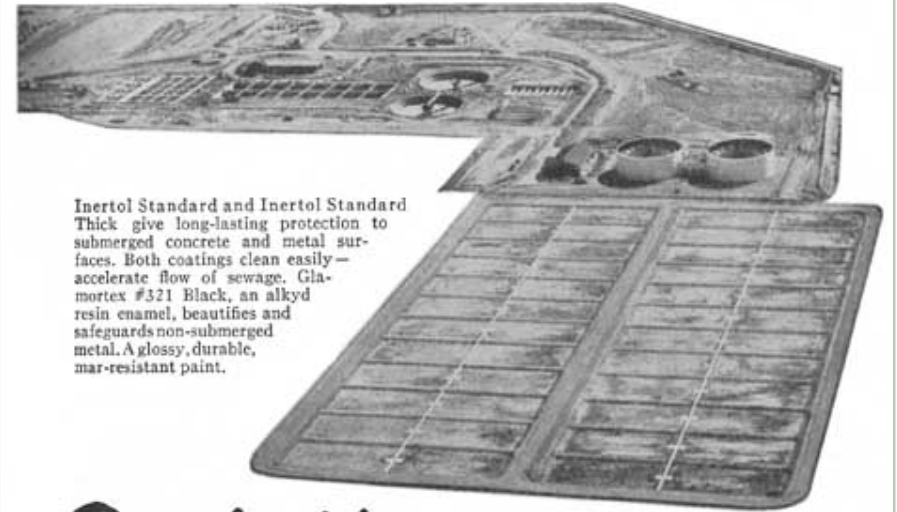
TP-I-21.02 MATERIALS

All paints specified hereunder are products of **Inertol Company, Inc., San Francisco, California**, unless otherwise specified. Products of other manufacturers, equal in quality and type to those specified will be acceptable if said paints are offered by the contractor with satisfactory data on past performance in water works, composition, directions for use and other information required, and if approved by the engineer. Colors where not specified shall be chosen by the engineer.

SEWAGE AND INDUSTRIAL WASTES

49a

INERTOL PAINTS



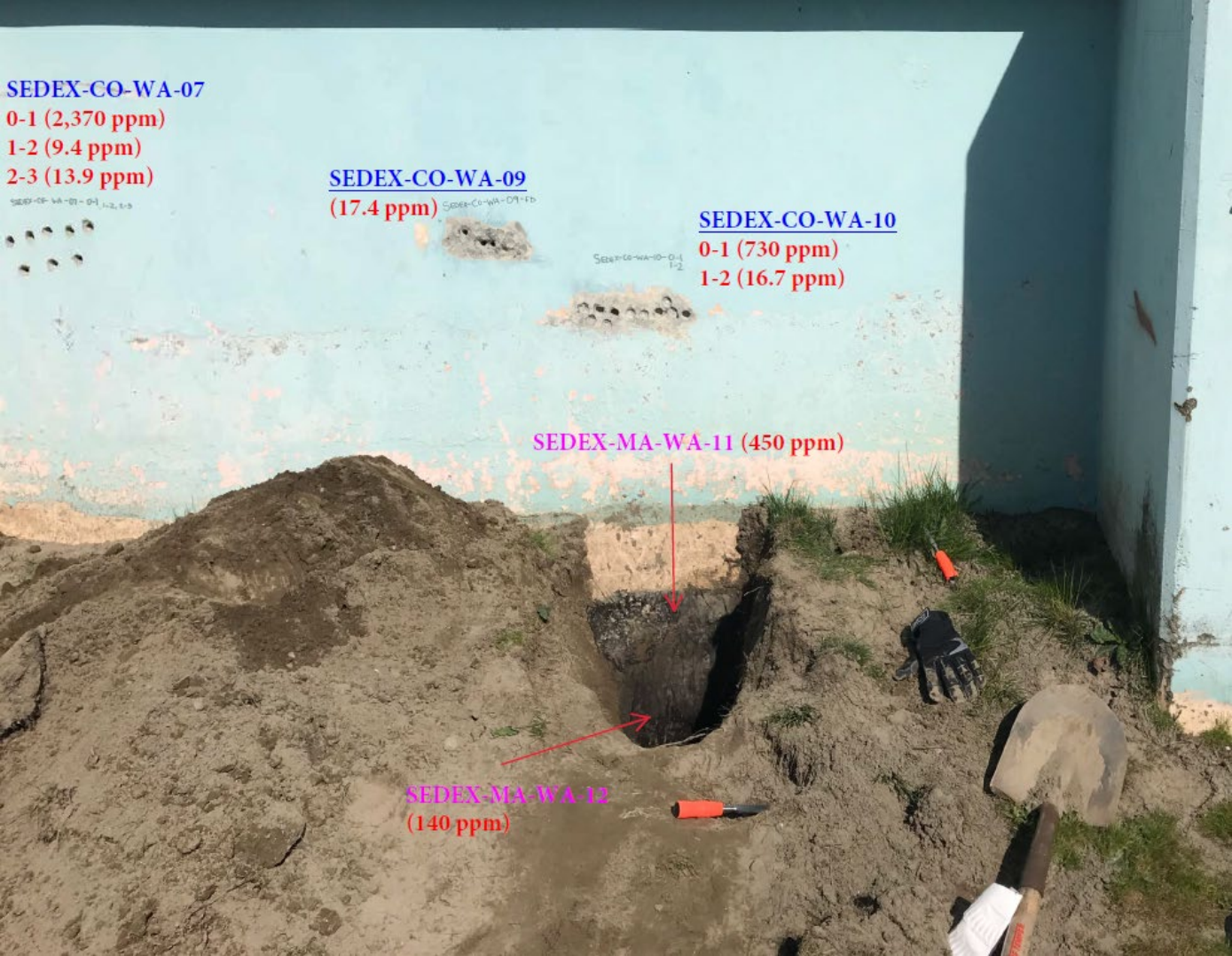
Inertol Standard and Inertol Standard Thick give long-lasting protection to submerged concrete and metal surfaces. Both coatings clean easily—accelerate flow of sewage. Glasmortex #321 Black, an alkyd resin enamel, beautifies and safeguards non-submerged metal. A glossy, durable, mar-resistant paint.

Specified for
TUCSON, ARIZONA

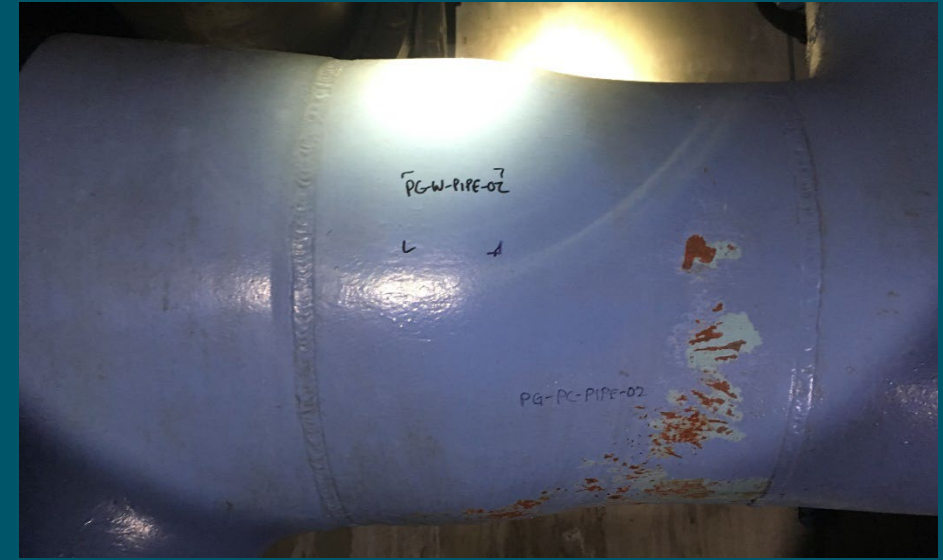
SEWAGE TREATMENT PLANT

Consulting Engineers Headman, Ferguson and Carollo specify
INERTOL coatings—developed especially for Sewage Plant use

PCB Delineation Sampling



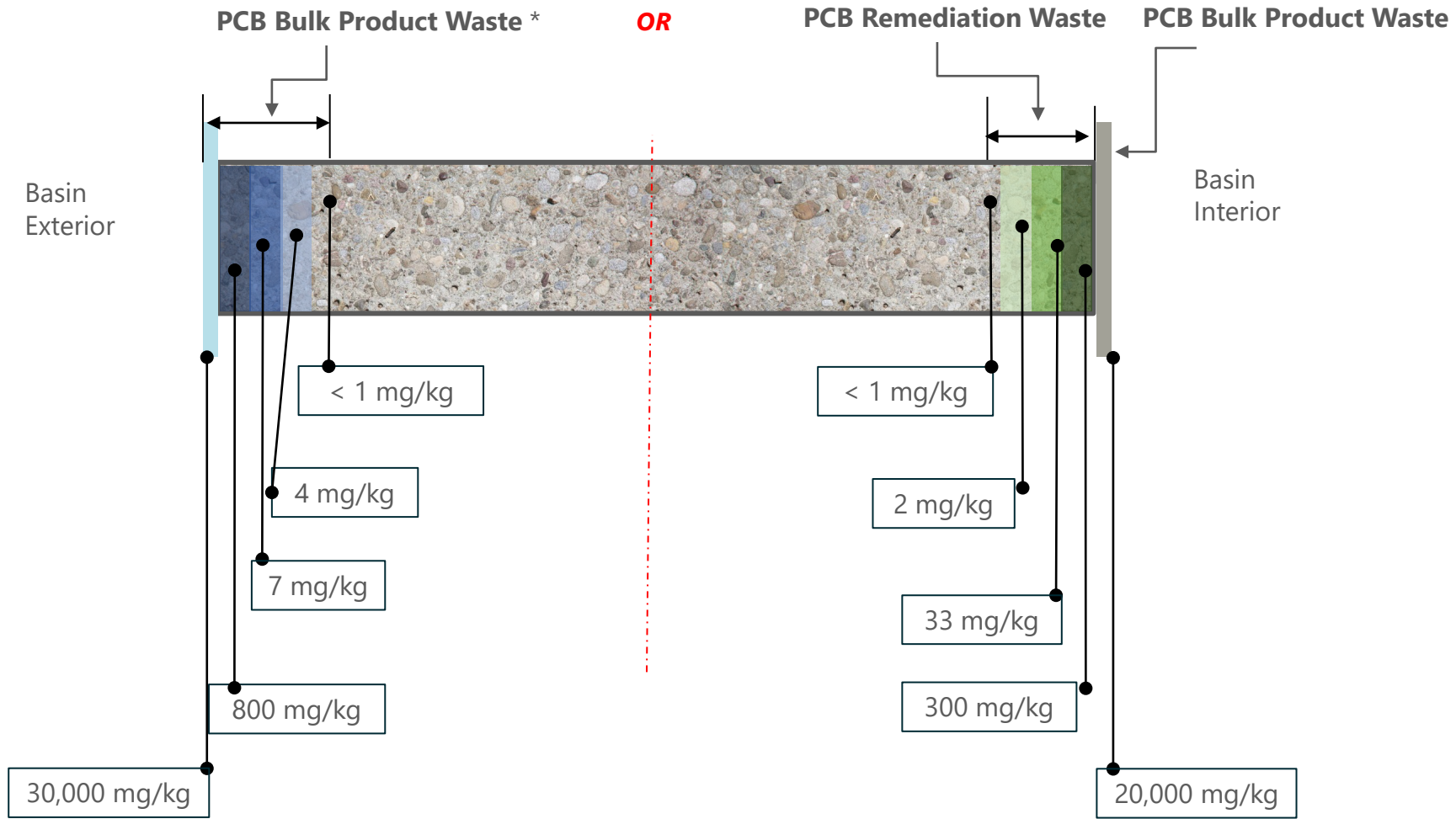
Wipe and Paint Chip Sampling



Classification of Basins Under TSCA (40 CFR 761)

- Two primary types of wastes may be generated during demolition:
 - **PCB Remediation Waste**
 - Contaminated from a spill or release of PCBs
 - Can include soil, concrete, masonry
 - Regulatory requirements depend on spill date and source concentration
 - **PCB Bulk Product Waste**
 - Non-liquids that currently contain PCBs at concentrations ≥ 50 mg/kg and were manufactured to contain PCBs
 - Basin coatings, certain expansion joints and caulking, paint on pumps and piping, certain electrical control wires are all PCB Bulk Product Waste
 - Building material substrate contaminated by PCB Bulk Product Waste

Options for Basin Classification Under TSCA



*Can only manage substrate as PCB Bulk Product Waste

Bulk Product Waste Considerations

Advantages

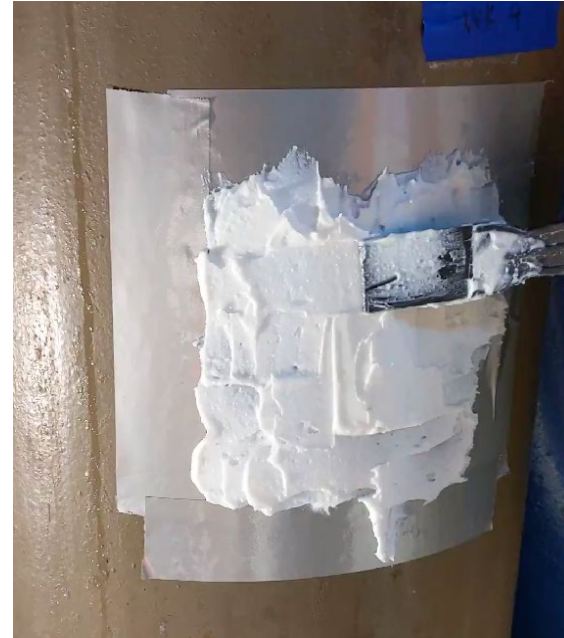
- Less expensive disposal (depending on the state)
- Does not require notification to EPA or approval of cleanup plan if remediating bulk product waste
- Disposal in a licensed non-hazardous waste or municipal landfill is allowed under TSCA
- **Under 2012 Reinterpretation, underlying substrate with PCBs can be managed as Bulk Product Waste if still attached/adhered to the PCB Product Bulk Waste (e.g., source of contamination) and the substrate is removed at the time the decision to dispose of material is made**

Disadvantages

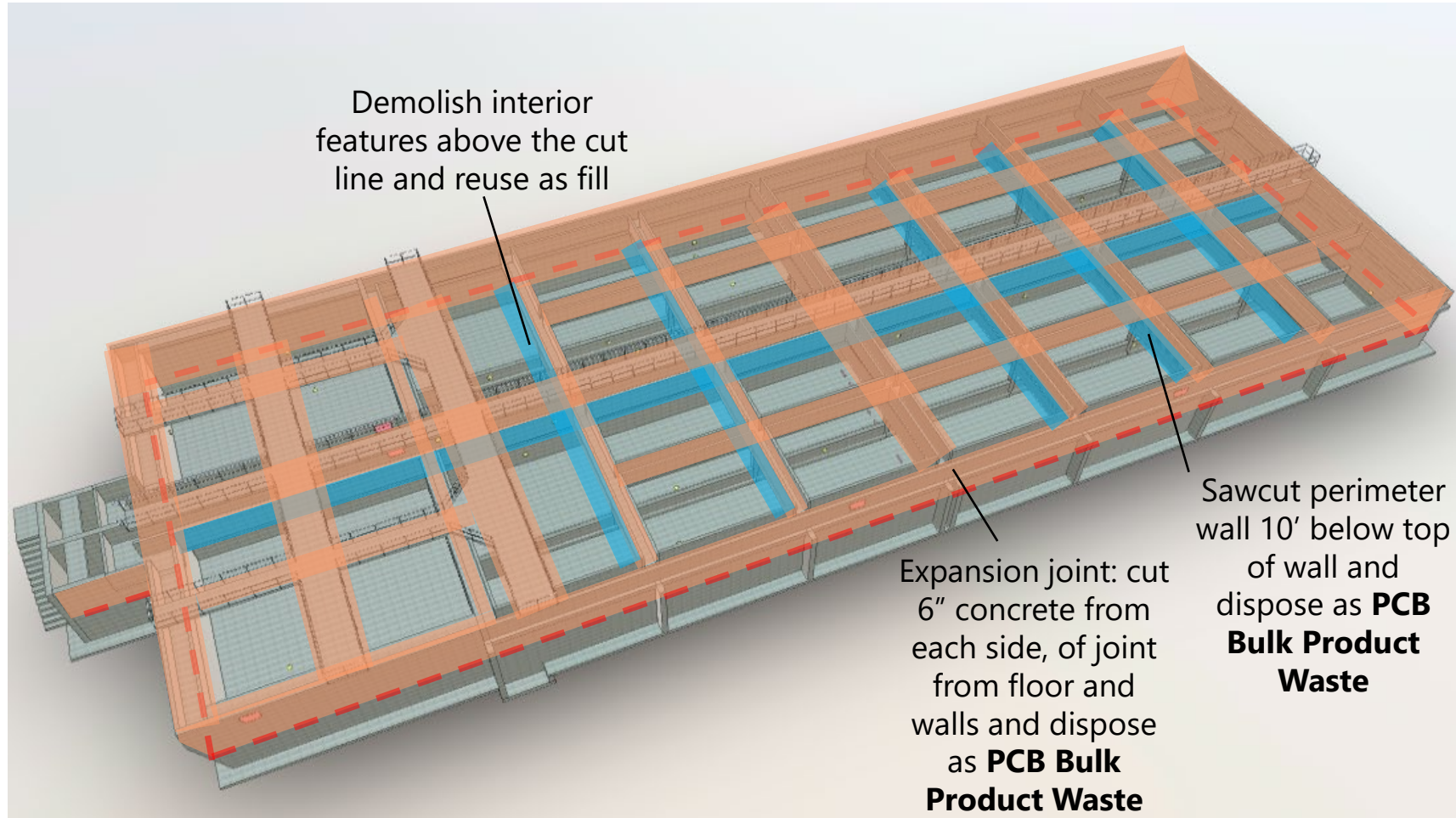
- Very few Subtitle D landfills will accept waste if PCB concentrations > 50 mg/kg
 - Leachate data can be used to support disposal in a Subtitle D landfill
- State level regulations may still dictate disposal as a hazardous waste
- PCB Bulk Product Waste cannot be managed in place
- Requires removal of substrate to 1 ppm (when managed as a PCB Bulk Product Waste)

Treatability Study

- In coordination with Univ. Central FL
- Evaluated the effectiveness of NASA's **Activated Metal Treatment System** (AMTS) to dechlorinate PCBs to allow for non-hazardous disposal
- AMTS reduced PCB concentrations in by:
 - ✓ **94%** on painted metal
 - ✓ **12%** on painted concrete
- Final concentrations not low enough for non-hazardous disposal or beneficial use



Conceptual Design

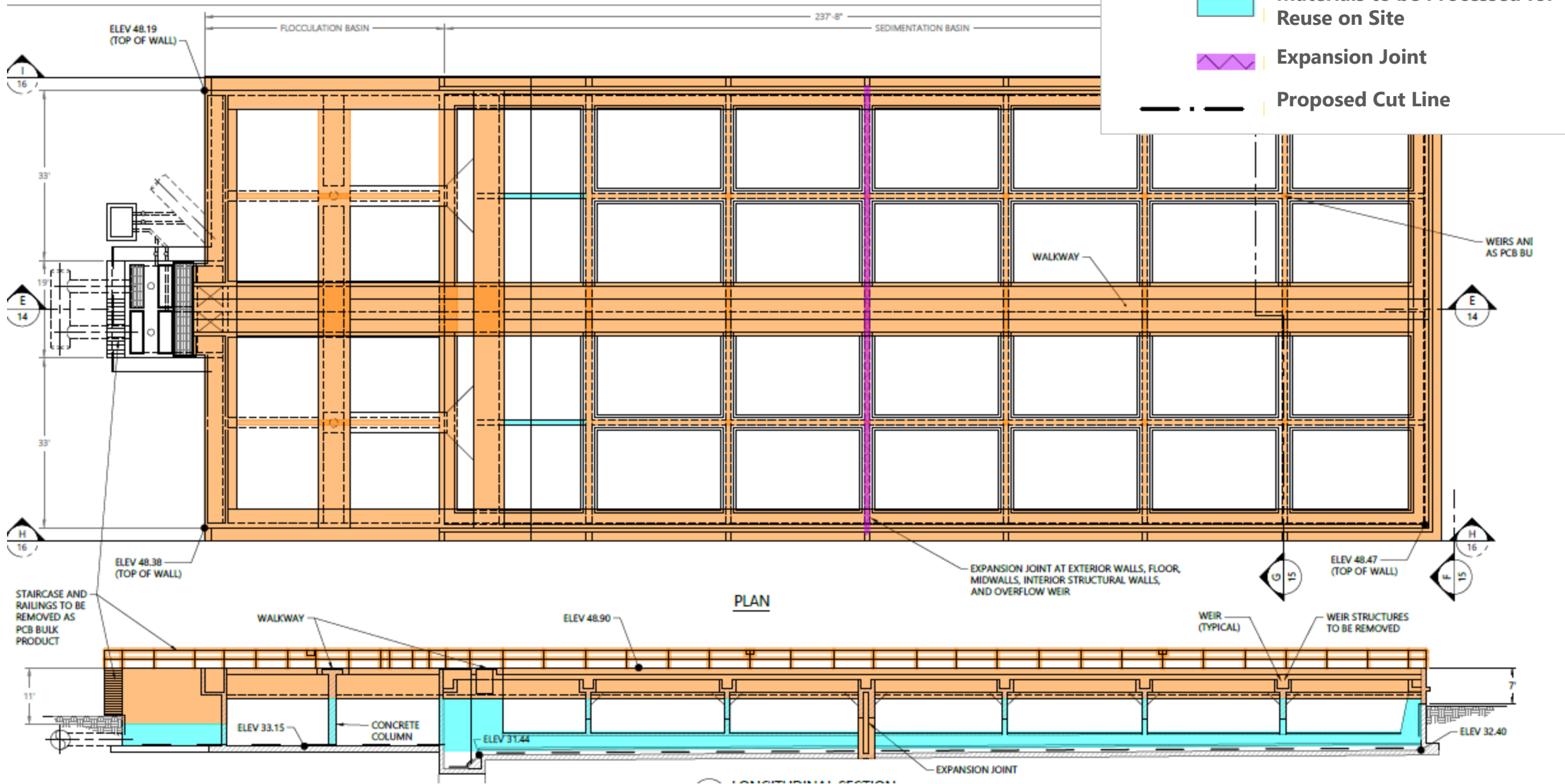


■ Uncoated Concrete with PCBs <1ppm

■ Coated Concrete with PCBs >50ppm

--- Horizontal Sawcut 10' Below Top of Wall

Final Demolition Design



Environmental Controls and Monitoring

- Goal: to reduce potential environmental liabilities and construction costs for facility owners by minimizing or eliminating releases during demolition
- Appropriate segregation of waste streams
- Protection of ground surface during loading of PCB wastes



Environmental Controls and Monitoring (cont.)

- Dust/particulate control measures
 - Basin geotextile covers
 - Dust barriers
 - Aerial water misting
- Continuous perimeter air monitoring

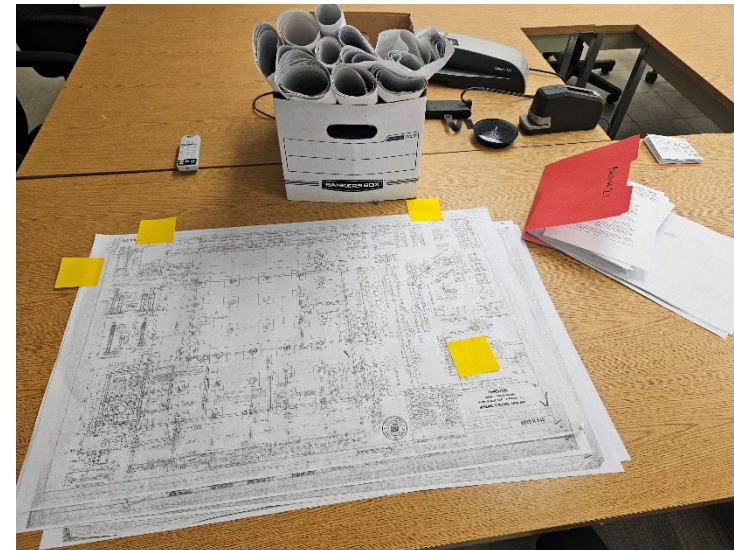
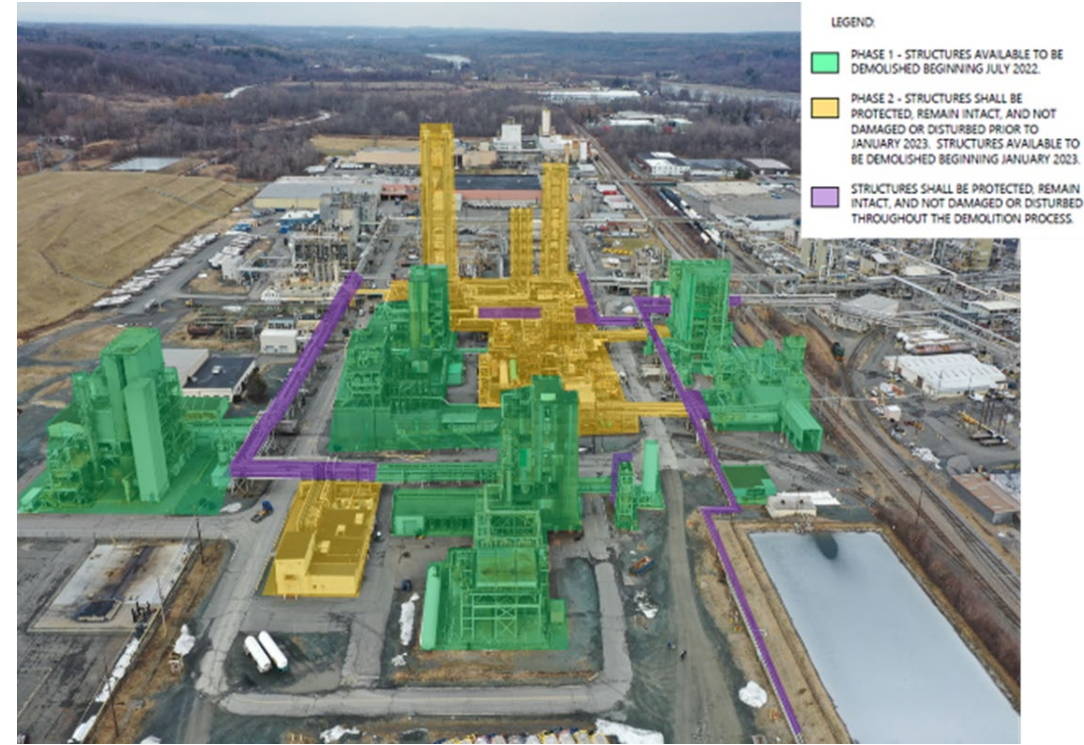


Demolition at Active Chemical Manufacturing Facility on the East Coast



Demolition—Where to Start?

- Understand project goals, objectives, and timing
- Review available information
 - Site-specific permits/orders
 - Previous spills, chemical usage history, age/vintage, existing data, construction drawings
- Evaluate potential demolition scenarios, estimated costs, timing



Pre-Demolition Assessment

- Implement pre-demolition assessment
 - Representative sampling (bias towards structures/materials and areas of concern)
 - PCB sampling: what, where, and why
 - Generator knowledge responsibilities
 - Review data and determine next steps
 - Additional sampling: delineate impacts and reduce volumes of non-impacted materials
 - PCB Bulk Product or PCB Remediation Waste: how to determine?
 - Site generator status
 - Identify regulatory drivers, implications, and notifications



Have Data—Path Forward

- Select demolition path forward
- Important to have top-to-bottom “buy in” and project understanding
 - Management, legal, environmental, safety, procurement
- Leverage experienced demolition contractors with PCB/environmental experience



Demolition Design, Bid, and Procurement

- Clearly document locations, extent, type of PCB wastes
- Include PCB-related performance criteria for demolition contractor
 - Removals
 - Handling
 - Staging/sizing
 - Transportation and disposal
 - Engineering controls
 - Work plans
 - Be careful directing means and methods!
- Evaluate and select bids (technical approach, experience/qualifications, watch out for assumptions)



PCB Bulk Product Disposal

- Federal and state requirements for PCB Bulk Product disposal
 - TSCA disposal requirements
 - State notifications/approvals
 - Average PCB concentration calculations for landfilling
 - Other COCs can potentially impact disposal options



Engineering Controls During Demolition

- PCB-related engineering controls during demolition
 - Pre- and post-demolition sampling (verify and document)
 - Inspections
 - Air monitoring
 - Weather and wastewater control
 - Waste (notifications, tracking, staging, covering, holding times, billing/invoicing)
 - PPE
 - Project documentation



Summary

- What's the worst that can happen?
 - PCB Bulk Product waste improperly handled and impacts previously clean materials
 - Workers or neighbors claim to be impacted
 - Other site operations impacted
 - Impacted materials placed/disposed/used improperly
 - Regulatory items
 - Project schedule and cost





What questions
do you have?