Rehabilitation of
Historic National Landmark

the

EARTHOID

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Located in Germantown, Maryland

- Built 1980 by Chicago Bridge and Iron
- Owned by Washington Suburban Sanitary Commission
- When built, Montgomery County, Maryland had banned above-ground tanks
- Mural aesthetically designed to win approval of the County
Design Considerations

- Design Team led by Steve Meier, P.E., S.E.
- New and Challenging Design
- “Tank of the Year” by the Steel Plate Fabricators Association in 1980
Original Painting

- Mural Painted by Peter Freudenberg
- Resemble the earth as seen by the Apollo Astronauts, 20,000 miles in space
- 1978 budget to paint the tank - $140,000
1990’s

- 1991 - Tank Industry Consultants evaluated the exterior coatings
- Early to mid 1990’s – WSSC had touch-up and a full clear coat applied to extend the life of the mural
1991 Evaluation
2006 – Exterior Evaluation

- Areas of missed clear coat were observed and the coating was fading
- 40% of the roof exhibited peeling of the clear coat and the topcoat
- Approximately 12 coating failures that resulted in rust were observed on the container
- The coating failures were up to 6 inches in diameter
- Existing coating adhesion was fair to good
2006 Recommendations

- Perform a full tank evaluation
- Touch-up coating failure areas within one year to arrest corrosion
- Start budgeting and making plans to rehabilitate the tank
2009 Evaluation Recommendations

- Recoat Exterior – Coating removal was the best option
  - Risk involved in topcoating because of the cost of the mural
  - Fair adhesion of the existing coating
  - Peeling of the existing clear coat
  - Age of the existing coating
2009 Evaluation Recommendations

- Recoat interior within 2-3 years
- Re-evaluate interior dry in 5-6 years
- Perform safety, sanitary, security upgrades
Project Coating Design Options

- Is the earth mural really required?
- Is there a less expensive, acceptable alternative?
- Owner bid an alternate of a baseball mural, but elected to reapply the earth mural
2011 Tank Rehabilitation

- **Scope of work:**
  - Surface Preparation – SSPC SP-6 Commercial Blast
  - Prime Coat – Moisture Curing Urethane with Zinc Primer at 2.5-3.5 mils
  - Intermediate – Acrylic Polyurethane at 2.5-3.0 mils
  - Finish and Mural – Fluoropolymer Urethane at 2.5-3.0 mils
Mural Artist – Eric Henn

- Extensive experience painting murals
- Painted similar earth design on a natural gas tank in Savannah, Georgia
- Painted several other murals such as horses in Versailles and Lexington, Kentucky and Dolphins in Tampa, Florida
- erichennmurals.com
Costs

- Approximate cost to coat entire tank (interior and exterior) in 1979: $140,000
- Approximate cost to paint the mural in 2011: $120,000
Questions?

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